Railway Age

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Copies Delayed in Mails

We are receiving many complaints from subscribers that the *Railway Age* is not being delivered to them promptly. In many cases, requests are received for additional copies to replace those which have not been delivered at the time of writing, but which are later delivered by the post office after an unreasonable delay. The paper is being printed and mailed on its regular schedule, and if you do not receive your copy promptly or regularly, take the matter up with the postmaster at the same time that you write to us.

Government Operation of the Mail Service

A director of a division of the Railroad Administration has registered a complaint against our circulation department because of the repeated delays in receiving his copies of the *Railway Age*. Writing on January 25, he said that his paper for January 17 had not yet arrived, although another copy of the same issue for another officer of his division had just been received. Another office in Washington received its copy of the January 17 issue on January 25 and our own Washington office received its copies on January 22, although a copy sent by special delivery arrived on January 18. As all of the copies for Washington are mailed from New York at the same time each Friday, while their delivery in Washington frequently straggles through the succeeding week, we are strongly of the opinion that the difficulty lies in the postoffice department rather than in our circulation department, and this impression is confirmed by the much greater length of time that is now required to get letters delivered. Yet we have not heard of any suggestion that the government take over the operation of the postoffice for a five-year test.

More Enormous Theoretical Savings

The chapter of the director general's annual report on public service and accounting closes with the statement that "it can be affirmed with certainty that, were the railroads of this country actually unified under one control, there would be an enormous saving in accounting expenses." Under the heading "General Expenses," the Interstate Commerce Commission includes the salaries of general officers and the salaries and wages of officers and employees in the accounting and legal departments. Until the complete reports are filed with the Interstate Commerce Commission, it is not possible to separate general expenses into the primary accounts, but those who argue that unified control is desirable claim very large savings in almost all these primary accounts. As a matter of fact, salaries of executive officers during the past year of government operation have, in a great number of cases, been charged against the company and are not, therefore, included in general expenses. Furthermore, the salaries and the expenses of the regional directors and of the central administration are not charged to the general expenses, pro rata or otherwise, of individual railroads. While therefore there may not be any less actual expenses under this heading, it would seem probable that there would be a very considerable reduction in the amounts charged to individual roads under this class of primary accounts in general expenses. The same ought to be true of the primary accounts covering legal expenses charged to general expenses. There are left, then, the accounting and miscellaneous expenses. Presumably, the word "enormous" is not used in a relative sense in the director general's report, for accounting expenses have averaged but from 3 to 5 per cent of total railroad operating expenses. A saving of a few million dollars for the country as a whole is apparently what is meant here by enormous. But what are the facts for the first eleven months of the calendar year? The general expenses of the larger railroads total $101,994,264, as compared with $88,058,679 for the same roads for the first eleven months of 1917. If there actually have been large reductions in the amounts charged to general expenses, then there has been an "enormous increase" in accounting expenses. The accounting department report gives six reasons why the saving in 1918 was "nothing like it might be and would be under permanent unified operation." Three of these reasons amount to the fact that the separate entities of the roads had to be maintained, and the other three are explanations of extraordinary expenses entailed in the *installation* of federal operation. It's the same old story—theoretical "enormous" savings with actual increased expenses.

Administration Really Needs $750,000,000

The new director general, Walker D. Hines, in his letter to Carter Glass, Secretary of the Treasury, reprinted elsewhere in this issue, sets forth, lucidly and convincingly, the need for an addition of $750,000,000 to the present revolving fund of $500,000,000. As Mr. Hines shows, this billion and a quarter is in the nature of working capital, and to date the actual loss to the government from the operation of the railroads has been only about $200,000,000. Assuming no loss in 1919, the books of the Railroad Administration when closed at the end of 1919 would show cash on hand or debits against the railroad companies of something over one billion dollars. The additional $750,000,000 asked for now appears to be a minimum of what will be required. Even this amount has to be supplemented by the financing on the part of the railroads through their own credit of approximately $291,000,000. If there is a loss in net operating income in 1919, as compared with the aggregate of rentals due the companies, it will not necessarily mean that the administration will need a larger revolving fund, but only that a greater part of the fund will have to be written off as loss and a smaller part will represent debts of the railroads to the government. It is significant that in stating the administration's needs for working capital, Mr. Hines prefaces his figures with the statement that "when the government shall have settled its accounts," etc. At present, in the absence of adequate working capital, the Railroad Administration is holding off its creditors. Without action from Congress this is the only course open for the administration, but it is a course which no soundly run business would voluntarily adopt, and Congress should act immediately to provide the Railroad Admin-

istration with adequate working capital so that a sounder business attitude can be adopted toward the administration's creditors.

Why Hang It on the Railroads?

ONE OF THE DEVELOPMENTS of the war was the United States Employment Service. Established in the early part of 1918 as a branch of the Department of Labor and fostered to meet the needs of the war industries, its organization spread rapidly over the country so that there are now about 750 branch employment agencies covering practically all parts of the United States. As it was realized that open competition by the various war industries for the inadequate supply of labor would lead to no good, it was proposed to institute a form of control whereby labor could be allocated to the various industries much as was done with materials, although not to the same degree. Certain serious difficulties interfered with the success of this plan, the chief being that the laborer himself must be given some choice in the matter. In the actual prosecution of the work all industries, including the railroads, were requested to place their orders for labor with the Federal Employment Service and certain restrictions were placed upon the solicitation of labor by individuals, but under stress of war necessity individual initiative emphatically asserted itself. The great war industries did not depend upon the Federal Employment Service, but instituted their own means of solicitation and advertising, and the federal service also carried on a program of special recruiting for some of the more urgent demands, which resulted in some open competition between various divisions of the service itself. The railroads also were compelled to look out for themselves and opened up employment offices of their own in the large cities.

With the market reduction of industrial and commercial activities following the signing of the armistice, the enormous burden placed upon the United States Employment Service has been largely removed and the officers of this organization who had always felt that the railroads did not make sufficient use of the federal agencies turned their attention to a plan whereby all solicitation of labor for the railroads would be done by the federal service. This resulted in the labor conference, recently held in Chicago, where railroad officers were told of the advantages of the centralized control of labor solicitation and recruiting.

That there is considerable question as to the practicability of centralizing the solicitation of men for employment on the railroads to the degree proposed by the United States Employment Service is clear from the discussion brought forth at this conference. The position of the employment service is obvious. The removal of the enormous war demand for labor has left it with a big organization, the present demands upon which are not sufficient to justify its perpetuation on the present scale. Obviously, if it be given responsibility for the supply of labor to the railroads this will go a long way toward justifying its continued existence. Through a resolution passed by the conference, the question of co-operation between the United States Railroad Administration and the United States Employment Service has been put up to the director general and the regional directors of the railroads. Whatever action is taken in pursuance of this resolution, the matter should be considered solely with reference to the welfare of the realroads and their employees. The effect of the policy adopted upon the future of the United States Employment Service in its present form should receive no consideration. Why give the employment service a monopoly of the furnishing of labor to the railways, mainly in order that the employment service may continue to exist? In other words, why hang it on the railroads? Haven't they troubles enough, already?

Re-Establishing Railway Credit

THE FACT CANNOT be too strongly emphasized that the pending railroad problem is essentially that of devising means of re-establishing and maintaining railroad credit. The problem of credit, in turn, is fundamentally that of adopting some plan under which the railways can be returned to the permanent management of their owners with a reasonable certainty that they will be able to raise the large amounts of new capital which will be required for the adequate development and increase of their facilities. The problem of devising means of securing the most economical operation consistent with good service is interlocked with that of re-establishing credit, but to some extent the two can and ought to be considered separately.

The railways can be enabled to raise adequate new capital only by insuring that, under good management, they will be given opportunity to secure sufficient net income to pay a reasonable return both upon their old and their new capital.

It is contended by some persons, including members of the Interstate Commerce Commission, that before government operation was adopted the railways were allowed to charge rates that yielded reasonable profits. Elaborate statistics are cited to prove this. The incontrovertible facts are, however, first, that for several years before government operation was adopted the expansion of railway facilities was rapidly declining; and, second, that the facilities became inadequate to the demands of the country's business. Some take the view that the companies became unable to raise sufficient new capital because of abuses in their financial management. But the abuses, so far as they were real, were confined to a comparatively few companies, while the decline in the expansion of facilities was general. The growing inability of the railways as a whole to raise adequate capital was due mainly to a faulty policy of regulation; and the legislation under which they are restored to private management must, if adequate expansion of their facilities is to be renewed, establish principles and methods which will insure that they will be able to pay a more certain, and many of them a larger, return.

Various plans for accomplishing this have been suggested. One is that the government shall guarantee a fixed percentage of return for all roads on some basis of valuation. The conclusive argument against this is that it would destroy all incentive to enterprise and efficiency. No plan under which the owners of each individual property will not lose by inefficiency in its management and gain by efficiency will foster good management.

Another proposal is that the government, on some basis of valuation shall guarantee each company a minimum and a maximum percentage of net return. If the minimum is not earned the deficit shall be paid from the public treasury, and any excess earned over the maximum shall be paid into the public treasury. This plan would not destroy the incentive to efficiency, and might not seriously impair it if the maximum allowed was fixed reasonably high. Its most objectionable feature is that some roads almost certainly would not earn the minimum, that the government would have to make up their deficits, and that this would create financial relations between the government and these railways which would foster agitation for government ownership of them. Governments have made guarantees of net earnings to railways in many countries. Wherever the railways have failed to earn the guaranteed amounts there has been agitation for the governments to acquire them, and in most cases this agitation has been successful.

The plan proposed by the Association of Railway Executives sets forth that "the statute itself should provide the rule of rate-making, and should require that rates be not only what is called reasonable, but adequate and sufficient to

enable the carriers to provide safe, adequate and sufficient service." That this ought to be the rule, and that it is desirable to have it established by law, seems clear. But serious differences of opinion might arise regarding the way in which it should be interpreted and applied. In spite of the decline in the development of the railways which has been constantly and rapidly going on for almost ten years, the bodies that have regulated them are still contending, in effect, as already noted, that they have been so regulated that they could have adequately expanded if they had been disposed to. Just how these bodies think they can rationally argue that people with capital carefully refrained from putting it into an industry the returns earned in which made it an attractive industry in which to invest we do not understand.

The principle by which most of the rate regulating bodies actually have been guided has been that of reducing and keeping rates as low as could be done without having them declared confiscatory by the courts. The Association of Railway Executives suggests that a large part of the control of rate-making be transferred to a Secretary of Transportation, with the thought that a purely administrative official would act, not on the principle of near-confiscation, which has guided most of the regulating commissions, but on the principle of public expediency. We believe it is sound doctrine that the administrative and judicial functions now performed by the Interstate Commerce Commission should not be delegated to the same body, but many persons fear that a Secretary of Transportation would be influenced by considerations of politics as well as considerations of public expediency.

Another plan which is being advocated is about as follows: Divide the railways of the country into, say, ten geographical groups, the boundaries to be determined by operating and traffic conditions. Provide by law that the rates in each territory shall be so fixed as to enable the railways of that territory as a whole to earn an average net operating income on the aggregate book cost of their road and equipment of, say, 5½ per cent. Some roads in the group would earn less than this average; some more. When a railway earned in excess of, say, 6¾ per cent, the excess, under this plan, would be divided, part being retained by the company, part being paid as a bonus to its employees, and part being paid into the public treasury.

The book cost of road and equipment is not an entirely satisfactory basis on which to compute the total net operating income allowed to be earned, but it is the best at present available, and has been used in important rate advance cases. This plan would have several advantages. First, it would not establish entangling financial relations between the government and the railway companies. Second, since it would not arbitrarily limit the net return which any individual company could earn it would not destroy the incentive to efficient management. Third, it would nullify the old argument that rates must not be fixed high enough to enable the average road to earn an adequate return for fear the stronger roads would earn an excessive return.

From the standpoint of roads which long have been earning a high percentage of return, however, this plan would be objectionable and perhaps unjust. Furthermore, the fixing by law of specific average and maximum rates of return which the companies would be allowed to earn might in the long run prove to be unwise. Nobody knows exactly what average return is needed by the companies now; and the return required might diminish, or might substantially increase, because of national or international financial developments for which they were not responsible. But, after all, human action, including legislation, should be based on probable and not merely possible developments. People do buy bonds which run 20 years or more and pay a fixed rate of interest, in spite of the fact that the general rate of interest may decline or advance; and it ought to be possible to estimate fairly accurately the average and maximum returns the roads as a whole should have.

It seems to us that the best solution of the pending problem of railway credit consistent with leaving unimpaired the incentives to efficient management would be found in legislation embodying the following principles: First, the railways should be encouraged, under proper government supervision, to so co-ordinate their operations as to limit the obvious wastes of competition while preserving as much competition as is necessary to promote emulation in operation and in improvement of service. Second, "the statute itself should," as the Railway Executives' plan says, "provide the rule of rate-making, and should require that rates be . . . adequate and sufficient to enable the carriers to provide safe, adequate and efficient service." Third, the statute, as an auxiliary guide in rate regulation, should specify a minimum average rate of return on property investment—not less, surely, than 5½ per cent—which the railways as a whole, or groups of railways, must be allowed by regulating authorities to earn, and perhaps fix a maximum return, any earnings in excess of which must be divided on some basis between the company earning them and the government. Fourth, some federal regulating authority should be given power to supervise the issuance of securities and the making of expenditures chargeable to capital account. Provisions such as these are, we believe, required to re-establish railway credit on the basis on which the public welfare demands that it shall be placed.

Fancies and Facts Regarding Government Operation

PUBLIC OPINION seems to be running strongly against government ownership and operation of the railways and public utilities now in the hands of the government, but the question cannot be considered settled until these properties shall have been returned to the management of their owners. The former director general of railroads, Mr. McAdoo, continues to advocate a five years' extension of the present system and to make predictions regarding the results that would be gained. Many of the railway employees who under government operation have received advances in wages exceeding their fondest dreams are bombarding members of Congress with propaganda for a continuance of government operation. The doctrinaire proponents of public ownership are still arguing for it, and making as glowing predictions as ever about what it would accomplish. Some of them admit that the country's first year's experience with government operation has been rather disconcerting, but they attribute the disappointing results to war conditions and say there would be a great improvement under peace conditions.

In these circumstances, it is desirable to recall some of the predictions which emanated from exactly the same persons just before and just after government operation was adopted. On December 9, and again on December 14, 1917, just two weeks before government operation was adopted, S. W. Brookhart of Iowa, a protege of Clifford Thorne, advocated government ownership of railways at a hearing of the Newlands Joint Congressional Committee in Washington. He estimated the savings in operating expenses that would be effected at $400,000,000 a year. Clifford Thorne had previously made a similar estimate in an address before the National Association of Railroad Commissioners. After government operation was adopted a newspaper of wide circulation estimated in an editorial that the savings effected under government operation would be at least $1,000,000,000 a year.

On January 19, 1918, and again on January 21, three

weeks after government operation was adopted, Director General McAdoo gave his views to the Senate Committee on Interstate Commerce in Washington. He did not express such boundless optimism regarding the results of government operation as Mr. Brookhart, Mr. Thorne and others had expressed. He did, however, make the following statements:

"So I hope that very large economies may be practiced. How far they will be offset by increased cost of material and increased cost of labor, I do not know, *but perhaps one hand will wash the other.* If it does, and you maintain the present status, perhaps the government would not have to meet any deficiency against guarantees it may give. In any case, *I hope that the deficiency will be inconsiderable, and I hope as well that we may have a surplus."* (Senate Committee Hearings, page 823.) * * * "I hope there will be no deficiency. *I hope that such economies can be effected as will prevent deficiencies,* and I even hope that a surplus may result from government operation. Of course, that is a hope; I do not know." (Senate Committee Hearings, page 840.) * * * "We are taking the railroads over under a guarantee of about $100,000,000 less than they earned in the last fiscal year of the period (on the net operating income of which the compensation of the railways was based), and, in addition to that, excess profits taxes are to be paid out of that guaranteed income. *If the government, with its powers of coördination and common use of facilities, with the unquestioned economies that may be practiced under its control of the situation, and with an advantage of* $100,000,000 *over the proposed guaranty, as shown by the last fiscal year's earnings, has not made a fair trade upon the merits of the proposition for a temporary use of these properties, then I am frank to say I do not know what would be fair."* (Senate Committee Hearings, page 849. All the italics are our own.)

Mr. McAdoo made these statements knowing he was going to operate the railways under war conditions. It will be seen that he did not refer to any possible advance of rates, either freight or passenger.

Now, what was the actual outcome? There was only a small increase in the amount of traffic handled during the year. Nevertheless, the advance in operating costs in the eleven months ending with November, 1918, so "offset," and, indeed so utterly overwhelmed and annihilated the "economies" effected, that operating expenses in these eleven months on the Class 1 roads were $1,004,924,864 greater than in the same months of 1917. When the December figures are available they will show that the increase in expenses on the Class 1 roads during the year was at least $1,100,000,000, and when the figures for all roads are available they probably will show a total increase in operating expenses of at least $1,250,000,000.

The increases in expenses came so fast that, contrary to his obvious expectations, Mr. McAdoo was obliged to make large advances in both freight and passenger rates. These advances in rates yielded increased earnings of about $600,000,000 in the six months July-December, inclusive, during which they were in effect. The increases in expenses wiped out the $100,000,000 margin with which, as Mr. McAdoo told the Senate committee, he began; wiped out the $600,000,000 increase in earnings due to advances in rates; and left the government with a deficit of $200,000,000 from the year's operations. Taking into account the increased earnings derived from the advances in rates and the deficit incurred, it will be seen that Mr. McAdoo missed his guess as to the final outcome of the year by at least $800,000,000. As to the sage Mr. Brookhart from Iowa, when we add the reduction in operating expenses which he anticipated to the advance in operating expenses which actually occurred, we find that he missed his guess by over $1,600,000,000. And as to the newspaper of wide circulation, which estimated that reductions in operating expenses of $1,000,000,000 would be effected—it missed its guess by more than $2,000,000,000!

In view of the disparity between the predictions of the advocates of government operation of railways and the actual results of the country's first year of government operation, we should think that the public might be disposed in future to pay less attention than it has in the past to the views and prophecies of the advocates of government operation, and to give more heed to the information furnished to it and the opinions expressed to it by persons who know something about the railroad business.

New Books

American Society for Testing Materials Standards; 908 pages, illustrated, 6 in. by 9 in. Bound in cloth and half leather. Published by the Society, office of secretary, University of Pennsylvania, Philadelphia, Pa. Cloth $9, half leather $10.

This volume contains, in their latest revised form, the 128 standards which this Society has adopted. These standards will be published triennially, the 1918 edition being the first. The specifications are divided into the following primary groups: Ferrous metals (including specifications for rails, splice bars, track bolts, track spikes, structural steel for locomotives and for cars, spring steel, staybolt wrought iron, foundry pig iron, etc.). Non-ferrous metals, including cement, lime, gypsum and clay products. Miscellaneous materials, including paints, methods of analyzing broken stone and sand, sampling and analysis of creosote oil, etc. By combining all of the specifications of this important association in one volume they are placed in convenient form for the testing engineer and others having to do with the preparation and enforcement of specifications for materials.

Concrete Engineers' Handbook. By George A. Hool, associate professor structural engineering, University of Wisconsin, and Nathan C. Johnson, consulting concrete engineer, New York. 885 pages, 6 in. by 9 in. Bound in flexible leather. Published by McGraw-Hill Book Co., Inc., 239 W. Thirty-ninth street, New York. Price, $5.

The title page of this book names six others as being collaborators in its preparation. The book is naturally divided into two sections—that for the use of the builder and that for the designer. The first portion includes a section on materials, covering cement, aggregates, water and reinforcement; a section on general methods of construction covering the proportioning of the concrete, field tests, waterproofing, mixing, finishing, forms, etc. One section covers the construction of concrete floors, walks and roadways. Another discusses the properties of cement mortar and concrete. In the second portion of the volume will be found a section on the properties of reinforced concrete, one on beams and slabs, another on columns, another on bending and direct stresses, while, with reference to the designing of specific structures there are sections on moments of building frames, buildings, girder bridges, hydraulic structures, miscellaneous structures, etc. Separate sections are also devoted to foundations, retaining walls, concrete floors and abutments for steel bridges. The subject of estimating is also treated under a separate head. Much of the information given has appeared in earlier text books written by Mr. Hool, but the manner of presenting the information in this volume is clearly that of the handbook. In the portion devoted to the constructor are illustrations of various proprietary reinforcements with tables of their properties, illustrations of construction equipment, etc. The designing section contains some very complete designing tables and charts. One section which will be found especially valuable for certain purposes is that on the moments of rigid building frames.

Storekeepers Meet for the First Time Since 1916

Papers and Reports on Stock Books, Scrap Handling, Use and Inspection of Lumber, and Accounting

THE FOURTEENTH CONVENTION of the Railways Storekeepers' Association was held at Hotel Sherman, Chicago, on January 27, 28, and 29. Because of the war, the organization did not convene in 1917 or 1918 and consequently the meeting this week is the first since the thirteenth annual convention which was held at Detroit, Mich., on May 15, 16 and 17, 1916.

President W. A. Summerhays, assistant purchasing agent of the Illinois Central, delivered the opening address. He stated that while the association had not met for 32 months it had not remained idle. The executive committee held frequent meetings to establish the policy of the association as conditions changed. In order that interest in the organization might not lapse, each member of the executive committee and the third vice-president held informal district conferences of members of the organization from all parts of this country and Canada. During the period elapsing since the last convention the executive committee made a thorough canvas of the membership of the association with the result that 278 non-paying members were dropped. This loss, balanced against an addition of 95 new members, left the association 573 active, paid-up members on January 1, 1919. While this is the first time in the history of the Storekeepers' Association that its membership has decreased, the present enrollment includes only those sufficiently interested in the purposes of the organization to pay their dues.

Mr. Summerhays also briefly outlined the war activities of the association. He stated that each member of the executive committee and former Presidents J. H. Waterman (Chicago, Burlington & Quincy), J. G. Stuart (C. B. & Q.), and W. F. Jones (New York Central Lines), as well as Secretary J. P. Murphy (New York Central), offered their services in connection with the instruction of prospective officers in the quartermaster and ordnance departments of the army at the schools established at the leading universities of the country. A committee headed by D. C. Curtis (C. B. & Q.) was appointed by the executive committee of the association to work with the quartermaster general of the army in his campaign for the reclamation of material and supplies at the army cantonments and supply depots, as well as at the front overseas.

Mr. Summerhays called attention to the fact that the Railroad Administration had approved the purposes and activities of the Storekeepers' Association and had issued instructions to include in its membership representatives of the store organizations on all railroads under federal control. It also commended the association for establishing standards of store department practices.

The work of the association, officers and committees in preparing for the 1919 meeting was unusually difficult. The tremendous upheaval in manufacturing and commercial lines caused by the shortage of labor and the heavy demand for munitions for shipment overseas made the maintenance of a reasonably regular supply of materials for railroad needs a serious problem.

W. H. Clifton, lumber agent of the Baltimore & Ohio, Baltimore, Md., submitted a circular of instructions issued by the Baltimore & Ohio System for the selection of the site and the design of lumber yards, for the handling of lumber in the yards, precautions to avoid decay, and fire protection.

Fundamental Principles That Should Govern the Supply Department

H. C. Pearce, general purchasing agent of the Seaboard Air Line, read a paper outlining fundamental principles that should govern the organization and operation of a railroad supply department. He said in part:

The real purpose of the supply department is to provide materials and supplies suitable for the service for which they are required, when and where needed, at the lowest net cost. . . .

Our railroads generally have four sources of supply: (1) material on hand and on order, (2) material which can be reclaimed, (3) material made in its own manufacturing plants, and (4) material which must be purchased from outside manufacturers.

The supply officer should not make a purchase requisition until he has exhausted all other sources of supply, and the chief supply officer must have behind him an organization that will be a guarantee that when a requisition for the purchase of material is placed, it accurately describes what is most suitable for the purpose needed, and all other resources have been exhausted, or, if it is for the purpose of taking advantage of the market, that it will be used in a certain length of time and will not become obsolete. The purpose of the supply department of our railroads must not be compared or considered the same as mercantile establishments. A mercantile establishment is for the purpose of disposing of its goods at a profit. A railroad supply department is for the purpose of supplying the needs of the railroad at the lowest net cost, conserving its assets as represented by materials and supplies in every way possible.

I think it will be apparent that if the purposes outlined are sound, there should be no divided responsibility between the officer that is responsible for the expenditure, and the officer that requests the requirement and does the accounting.

PERSONNEL

Personnel is reflected in an organization from the top to bottom. Character, energy, and loyalty are absolutely essential to the up-building or maintaining of any organization. But, this is not alone sufficient. There must be developed a broadness of conception and action that will enable them to overcome obstacles in formulating and carrying out their plans, so essential for final results.

FACILITIES

Adequate facilities for properly housing and economically handling materials must be provided and maintained. Expensive buildings are not so much needed as ample space, platforms, tracks, cranes, and other labor saving devices for handling.

TRANSPORTATION

One of the greatest needs for the proper operation of the supply department is adequate transportation facilities, and this has generally been neglected. Supply trains (not supply cars) should be used to connect up the storehouse with the users on the line. This is the only way supply officers have of knowing that materials and tools are giving proper service, and what is actually needed to do the work, and the only way that users of the material can be assured of receiving what they need, and come in personal contact with the sup-

ply department. For this reason, the supply train is fundamental to any supply department organization.

Store Delivery

Delivering material to the users is the connecting link between the storehouse and the men that use the material in the shops. It is the only way that storekeepers can know that proper materials and tools are being provided, and only in such quantities as are actually required. It places the storehouse employees in personal contact with the work, eliminates friction between employees of different departments, foremen, etc., and makes the continuous chain, and is, therefore, fundamental.

Sectional Arrangement of Material

The sectional arrangement of material is based on grouping material of the same general class in sections, and placing it in charge of one man, who will be responsible for ordering, checking, inspecting and putting it away, as well as packing and delivering for shipment; or, in other words, handling it from the time it is ordered until it is issued. The section storekeeper is the one man that should know more about the quantity, quality and use of material in his section than any single individual on the railroad. He unconsciously identifies all material in his section and its location with the description and quantity as shown in his stock-book, and vice versa. Materials should be grouped for economical handling and not for accounting purposes.

Stock Books

The stock book is the catalog and bible of the storekeeper combined. It must accurately and technically describe each and every item. It must show the average monthly consumption of the previous year, the amount on hand the first of each month by actual count, the amount used and received by months, and is the basis of all estimates of advance requirements for materials.

Reclamation

I have often been asked the difference between reclamation and repairs. Theoretically, there is little. Repairs is putting a thing in shape to perform further service. Reclamation is the reclaiming of something that has been discarded as unfit for further service. In theory, nothing should be removed until it has performed its full service, and everything so removed should be repaired and put back into service where it is. In practice, however, this is not done. Enormous quantities of materials are removed before they have performed their full service; large quantities of materials are not repaired that could be repaired and made to give better service; so that reclamation must necessarily include the recovery of all useful materials, no matter for what reason it was discarded. Both reclamation and repairs are fundamental to the supply department for the reason that they furnish a source of supply and reduce the net cost for materials.

Accounting

The accounting for all material should be done by the supply department for the reason that they must know at all times what their receipts and expenditures are in order to control their business. The only way material can be accounted for accurately and economically is on the ground, and the fact that the supply department is responsible for all materials and supplies from the time the requirements are made until used or disposed of as salvage, makes the matter of accounting not only fundamental, but absolutely necessary.

The Stock Book and Store Department Efficiency

U. K. Hall, general storekeeper of the Union Pacific, read a paper on the stock book and its importance in stores work, an abstract of which follows:

The store departments on our railroads were created for the purpose of furnishing material when and where needed, with a due regard to the amount of capital invested, to conserve material, and to utilize to the best possible advantage, all material once secured. In order to carry out these functions, we must above everything else have an organization and such records that will give us at all times a complete knowledge of all the items on hand and on order and such a record that will quickly determine any article, surplus or not moving.

The stock book is the one form or operation above all others that will tend to achieve this end. By its use the storekeeper will have at all times such a knowledge of every item on hand and on order, and a perfect control of them. This condition is brought about by a count once each month of all items in stock (and by all items is meant not only material and supplies for the maintenance of equipment, but maintenance of way and all other departments). The total of these supplies and the quantity already on order as well, are recorded in appropriate columns, thereby showing at a glance the exact condition of stocks.

The benefits of this stock book in its relation to store department efficiency are so numerous that it is difficult to enumerate them all. Some of the fundamental purposes, however, other than this complete record and knowledge of all material on hand and on order, are as follows: It brings quickly to light, at least once a month, all articles in stock that are not moving. On checking items monthly, any storekeeper noting any article that is not being disposed of naturally starts an investigation, with the result that, providing the material is not held for some specific purpose, it is transferred to some point where it can be put into actual use.

It gives a complete record of every article in stock, so that the storekeeper is in a position at any time to follow the movement and consumption of any article or group of articles, month after month, and therefore is enabled to maintain his stock intelligently. All items of material received from sources other than purchases should be entered, such as material reclaimed, picked up from scrap, received from the shops, etc. The stock book will then give a complete debit list of all items received throughout the year.

By having the stock book written up in the general storekeeper's office according to a sectional arrangement—on the basis of storing together items used for the same general purpose and storing material as far as practicable in the order of the items thus entered—the same general scheme of storing material in all branches of the department is insured. Accordingly, when it is found necessary or desirable, as it always is, to transfer employees from one store or location to another, they are thoroughly familiar, immediately upon their arrival, with the new conditions. This tends to bring about what might be called a standardized system of stores.

By writing these books in the general storekeeper's office from a master copy it does not mean that the same sized book must be used at all points, but the items as selected for the smaller stores should be taken from the first or master copy used in the larger stores, thus insuring also a uniform description of all articles from all stores.

Well kept stock books allow the general storekeeper, traveling storekeeper, or store inspector, scientifically and accurately to check the material situation at any point visited.

When section storekeepers, helpers and attendants know that material has to be counted once a month they are far more careful as to how the material is sorted, stored or piled, as actual monthly counts cannot be made unless material is kept in such a condition as to allow a prompt and correct count and such care therefore brings about far more desirable working conditions.

To obtain the very best results from the use of stock books, all entries of material on hand, on order, and quantities required, should be made by the section storekeepers or stock men (subject to such check by the local or general storekeeper as desired), as they are in constant touch with the entire situation affecting the material in their respective sections and they are also thrown in daily contact with the users of the material as well.

Some roads use a stock card or ledger on which is entered all of the receipts and issues. Such a system is objectionable, however, because its accuracy depends upon the issuance of material by numerous parties, helpers, as well as office clerks, and it merely shows the condition that is supposed to exist. The only system that can be absolutely depended on is one where the material is actually counted and the results found at once entered, thus showing the conditions as they actually are and not as they are supposed to be.

As the use of the stock book develops, greater benefits can be obtained by installing in the general storekeepers' office a consolidated stock book, in which copies showing the result of the stock taking at all stores are entered. Thus by checking the purchase requisitions against this record the general storekeeper is at all times in possession of knowledge that material ordered is not on hand anywhere on the line in sufficient quantities to make the purchase unnecessary. Such a system is without question warranted on any road having a large number of district, division or even large local stores. Without its use such roads are constantly making purchase requisitions for articles already on hand.

Some roads at the present time realize the needs of a better system for the control of their stocks but hesitate to install the stock book system because they fear the cost of operating it. We all know, however, that first expenditures often result in ultimate large economies and in no operation of the stores department organization does this so aptly apply as to such stock records.

The use of the stock books is so practicable that when a road has put them into use no inducement can be brought to bear to have the practice discontinued. Without them the general storekeeper or any supply department official is merely groping in the dark in depending upon the skill of any individual in the upkeep of his stock, whereas, by the scientific use of stock books a system is built up that is not dependent upon any one or any number of individuals, but prepares a record that is on hand at all times and which will always reveal the true conditions existing.

Inspection, Use and Handling of Lumber and Crossties

M. E. Towner, manager, Forest Products Section, United States Railroad Administration, gave a review of the organization of the Forest Products Section, Central Advisory Purchasing Committee of the United States Railroad Administration, in its relation to the War Industries Board and the lumber manufacturers. The development of the new standard specifications for crossties which reduced tie requirements to five sizes was dwelt upon in some detail, as were also the principles evolved by the Central Purchasing Committee for the purchase of ties by the railroads. This subject was also considered from the standpoint of its relation to the conservation of lumber, prices and payments and particularly to the relation of the tie contractor to the Central Purchasing Committee, a matter which has been a subject of no little contention for some time. Considerable space was also devoted to the matter of tie treatment and the economies which have been secured through the proper application of preservative processes.

The subject of lumber and lumber purchases was also treated in some detail and the following is abstracted from the portion of the paper devoted to lumber specifications and grades:

Lumber Specifications and Grades

The stores department will be much interested in the ordering of lumber properly specified for the use intended, and the widest possible variance is now the practice, as comparing what one road obtains as against what another finds proper for a given service. The quite general practice of ordering "special cutting" or special sizes as at present employed, results in relative high first cost and manufacturers in considering the bids of one road we know of in yellow pine, add $5 per 1,000 ft. to their railroad schedule. Another road is referring to grades which have not been published nor even manufactured for seven years. What this road gets is known, and they pay for it. One road on hardwoods has cut its items down over 150.

Much lumber, purchased particularly through some sources, is placed at mills at from one to three grades below original order, and it is known to what destination this lumber can be safely shipped. Lumber shipped to one point on a road is often different in grade than that shipped to another point on the same road. Accepting lumber below grade at an arbitrated price, only results in accumulating off stocks, and results in using and handling expense. The shipper of standing also very soon knows what road is trying to "put it over" by improperly degrading at destination, and such road loses rather than gains by such a practice.

The "keeping the lumber coming plan" is less apt to bull the market, nor does it tie up as much money in lumber stock. During the war period, the Railroad Administration declined to purchase all of its yellow pine and fir lumber through the War Industries Board, only placing through that Board—Director of Lumber and Pine Bureaus—such orders as would come from the mills commandeered as to output, the other requirements being purchased on bids by railroad purchasing forces, at not above government fixed prices.

Under present conditions, purchasing forces place their business through competitive bid, copies of orders for yellow pine being sent to J. H. Lauderdale, special representative at New Orleans, and for fir to O. H. Wood, special representative, Seattle, Washington. Through this practice the representatives as stated, can get behind the deliveries, assist in better distribution of orders, prevent overloading of some mills, and overlooking of others, and keep the purchasing agents advised as to market conditions.

Accounting

The report of the accounting committee was read by J. H. Waterman (C., B. & Q.), chairman. It follows in part:

The committee has considered the accounting in values only which is all that is involved in obtaining the values of such material both in stock and as used and in compiling reports for the general accounts. In order to properly account for material, the following general rules should be observed.

General Supervision and Accounting

1. All material stocks wherever located should be carried in the accounts of the store department which will have supervision over all and will handle the accounting.
2. All material purchased for or returned to stock will be held in the store department accounts until issued for immediate or current use or reported as used.
3. Detailed accounting should be performed at the local, division or district store or in the general storekeeper's office, under the general supervision of the auditor.
4. The departments making requisitions on which material is to be furnished by the store will show correct accounts chargeable. Store department accountants should be thoroughly famil-

iar with I. C. C. instructions and see that they are observed.

5. The compilation of primary operating, construction and all other accounting reports will be handled by the store department as a matter not only of convenience but of economy and efficiency.

6. To make proper comparisons, all railroads should use the same material classification. The Railway Storekeepers' Association has approved a standard classification which, with a few modifications, we recommend be put into effect as soon as practicable.

7. We recommend that a standard loose-leaf price book be used. Actual prices should be used as far as practicable, but where they are not practicable, the average or last price should govern.

Accounting for Material Received

8. All bills payable should be checked against the receiving records and certified as to the receipt of the goods in proper condition.

9. Make all proper deductions from bills payable on account of transportation charges paid by the railroad and chargeable to the shippers to equalize the F. O. B. points or terms of delivery.

10. Check all deductions on account of cash discounts.

11. Make all proper deductions on account of credit memoranda received from dealers for the return of empty containers, etc. If necessary, such credit memoranda may be covered by regular bills collectible instead of deducting the amounts from original bills payable.

12. Make all necessary and proper deductions on account of shortages, erroneous shipments, loss and damage, non-compliance with specifications, inspection and test failures, etc., chargeable to the shippers and agreed upon by the departments' concerned.

13. Make all proper additions on account of over-shipments, errors in weight, etc., which may be agreed upon between the purchasing and store departments.

14. Verify all computations and make any necessary corrections on account of errors.

15. Classify the items and amounts on bills according to the Railway Storekeepers' Association classification and take into the material accounts. Bills payable will then be forwarded for voucher.

16. All freight bills, express due bills and other documents representing transportation charges paid by the railroad should be classified and taken into the material accounts. If to be paid by the shippers, they should be deducted from the bills, or credit taken by rendering bills collectible in accordance with terms of purchase. If to be borne by the railroad they should be included in the cost of the material based on F. O. B. points.

17. Transfer requisitions from other divisions or stores for material and supplies transferred from one stock account to another, should be taken into account as classified; after which they should be passed to the storekeeper for check against the receiving records and certification as to the receipt of the goods.

18. Transfer requisitions should be verified as to computations.

19. All overages, shortages, errors in computation and other differences should be taken up after transfer requisitions have been taken into account, adjusted by counter or additional transfer requisitions, if necessary, in the succeeding months' account.

20. Material issued from stock to the shops in connection with shop orders for the manufacture of other material or articles, should be transferred from the original classes to the class "Material in course of manufacture."

21. All released new, second-hand, and scrap material should be turned over to the store department and material accounts charged currently on basis of agreed prices, resulting in corresponding credits to operating expenses and other accounts.

Accounting for Material Issued

22. Values of material and supplies issued for immediate use will be compiled by the store department by primary operating and other accounts, segregated and designated as required by the I. C. C. and auditing department instructions.

23. Transfers of material and supplies to other store stocks will be accomplished through the medium of transfer requisitions, values to be based on current stock prices.

24. Such transfer requisitions against other stores will be classified and credited to the accounts of the shipping store.

25. Charges from shops to the material accounts for labor expended on "Material in course of manufacture" on shop orders, should be taken into store accounts under the class "Material in course of manufacture," and accounted for the same as other debits to material accounts. Upon the completion of the order the total cost of the manufactured article should be in turn transferred from class "Material in course of manufacture" to the proper class.

26. Material and supplies sold to individuals and companies on the basis of sale orders from the purchasing department should be accounted for by the rendition to the auditing department of bills collectible based upon the prices and terms of delivery quoted on the sale orders.

Classified Statement of Material Received, Issued and on Hand

27. All debits and credits being classified in accordance with Railway Storekeepers' Association classification of material, a monthly statement should be compiled by the storekeeper showing amount on hand first of month, the receipts, the issues, and the balance on hand at end of month, by material classes.

28. This statement will show values only, except where the management desires to have the quantity shown.

29. The balance on hand in the accounts of an accounting store should represent the balance on hand first of month, plus the values of the purchases, including freight charges, and receipts from other sources, less the issues and transfers to other stores and material sold.

30. The material accounts should be held open after the end of each month a sufficient length of time to permit entering in that month's accounts, all bills payable for material and supplies received, and all requisitions covering material and supplies issued during the same month, in order that the accounts may reflect, as near as possible, the actual value of stock on hand.

General

31. Loss and damage to material in transit between stores should be accounted for by the consignee store taking into account the transfer requisitions and disposing of the value by obtaining relief in accordance with existing rules of freight claim and auditing departments.

32. Loss and damage by fire or other causes to stock at stores, unless covered by insurance claim, should be taken up by the accounting store in accordance with auditing department instructions.

33. When material becomes obsolete, the account that would have been affected by the use of such material should be charged with the difference between the stock values and the amounts received from its sale.

34. Store department prices should consist of cost prices less any discounts, plus any proper transportation charges and cost of inspection.

Inventories

35. Inventories of all material and supplies, including scrap should be taken periodically, at such times as prescribed by the auditing department.

36. The method of arranging and taking inventories should be in accordance with the instructions given in Part X, Sectional Book of Standard Rules, of Railway Storekeepers' Association.

37. The prices applied to inventories should be current prices.

38. Material and supplies in transit between stores at the time inventory is taken, should be listed on separate sheets of the inventory, as an exhibit to be added to the amount of material and supplies on hand.

39. Material and supplies on hand when inventory is taken and included therein, or which may have been issued prior to taking of inventory and charged out, but for which purchase bills payable have not been rendered and taken into account, should be listed on a separate sheet of the inventory from the open items on the record of material ordered and received, to be deducted from the gross amount of material on hand.

40. Transportation charges that may have been included in the cost of material and charged out prior to completing the inventory, or included in the cost prices on the inventory, but

not taken into account prior to closing the inventory, should be listed on a separate sheet to be deducted from the gross amount of the inventory.

41. These statements should be prepared by classes of material and added and deducted from the appropriate classes on the summary of the inventory.

42. The net amount of the inventory, after necessary additions and deductions are made, should be the basis for adjustment of the material and supply accounts, which will be handled in accordance with auditing department instructions.

The report was signed by J. H. Waterman, chairman, (C., B. & Q.), U. K. Hall (U. P.), H. E. Ray (A. T. & S. F.)

Good Work of Association Recognized

George G. Yeomans, member of the Central Advisory Purchasing Committee of the Railroad Administration, delivered an address in which he commended the association for its excellent work, and urged close co-operation with the central administration at Washington to the end that further efficiency may be effected in the conduct of railroad stores departments generally. He stated that the Railroad Administration had seen fit to recognize and adopt the standards for tinware which were originated by the Railway Storekeepers' Association. Likewise, the association's classification of scrap materials, revised in conjunction with a committee of the American Iron and Steel Institute, has been approved and adopted as standard by the Railroad Administration. The classification of material and the book of rules setting forth the best elementary methods of railway storekeeping, which are the work of the association also, have been made standard practice, and, finally, the advantages of relieving the users of material from the responsibility attendant upon its procurement, care and distribution, have been recognized and the purchasing and stores departments on the railroads under federal control are being organized to that end under the direction of the Division of Finance and Purchases.

One of the most astonishing features of the present situation, he said, is the lack of definite information concerning the material which is in the possession of a large majority of the railroads.

Three elements enter into all information upon which any successful business must be founded. It must be recent, it must be reliable, and it must be readily available. If any of these three elements are lacking the information is valueless. In this connection Mr. Yeomans strongly urged the conscientious and intelligent use of the stock book, which is now being introduced by regional stores supervisors on those roads on which it was not in effect. He pointed out that the stock book has been recommended in rules laid down the Storekeepers' Association, and that there is, therefore, no excuse for an indifferent or unsympathetic attitude by members. He asserted that the railways of this country spend more than one billion dollars every year for the material that they use, and of this amount it is safe to say that at least 5 per cent is spent because of the lack of proper information.

Unapplied Material

The committee on unapplied material presented recommendations on the systematic upkeep and control of materials and supplies not now under the immediate supervision of a representative of the stores department. The report brought out the fact that of the entire material stock on our railroads which is now about six hundred million dollars, approximately forty per cent is distributed or scattered along the line of roads and that in many instances no complete stock record is being kept of such unapplied or unused line stock. Following the introduction to the report which was read by W. D. Stokes, assistant general storekeeper, Illinois Central, a number of pictures were reproduced on a screen to illustrate how a large part of the line stock is scattered on some of our railroads. These illustrations indicated the obvious need of some systematic upkeep and control of such material.

The discussion of the report by several members of the association finally resulted in its being referred back to the committee with instructions to eliminate from the report all recommendations which might conflict in any way with the association's standard book of rules or its recommendations on accounting.

The Operation of a Large Army Supply Depot

The management and operation of a huge supply depot was outlined to the members of the association by Brig. Gen. A. D. Kniskern of the United States Army. He traced the rapid development of the United States supply depot at Chicago from one of very small size, which was used largely for the storage of canned and cured meat, to a depot of exceedingly large size handling all manner of supplies which had to do with the personal needs, comfort and care of our soldiers as well as the payment of the men. His work not only had to do with the handling of stores but also the purchasing of supplies.

General Kniskern asserted that the tonnage handled under his supervision in November was 71,250,000 tons inbound and 104,729,000 outbound, involving the use of 200 cars per day. His organization consisted of 169 officers, 1,200 clerks, 9,000 civilian employees and 250 enlisted men. An invitation was extended to the members of the Railway Storekeepers' Association to visit the large new supply depot on Wednesday afternoon and arrangements were made to transport the party to and from the depot by army automobile trucks.

Other Papers

J. G. Stuart, general storekeeper of the Chicago, Burlington & Quincy, read a paper on the Conservation and Reclamation of Materials which included many excellent recommendations based on actual experience. Discussion brought out the fact that it was quite essential to know whether the cost of reclaiming material was less than the cost of the same material new. In mending broken and worn parts of material by means of the acetylene or electric arc welding apparatus the discussion brought out the fact that it was essential that those employed in making the weld should be thoroughly trained in the art in order to accomplish the best results.

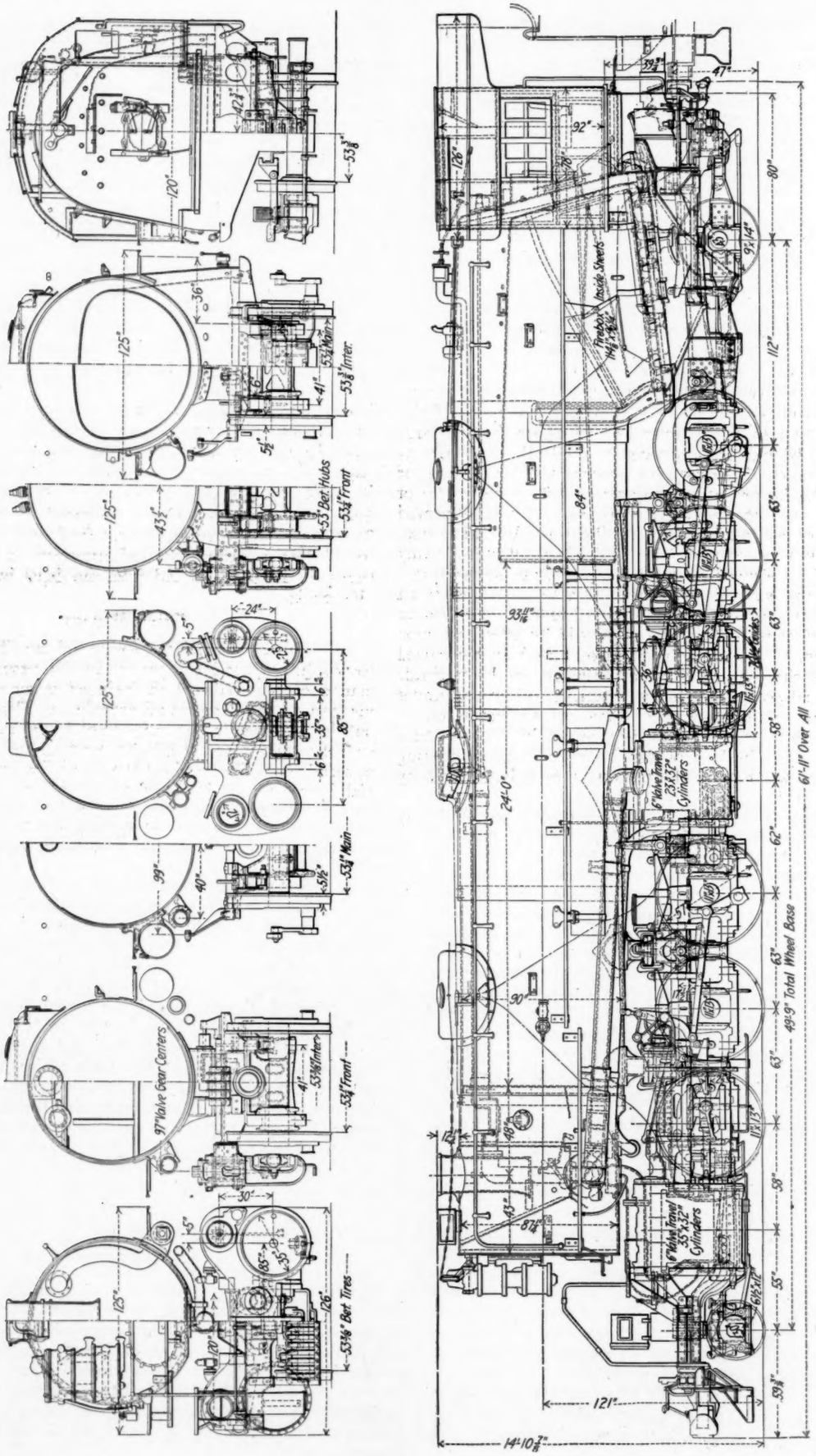
W. F. Jones, general storekeeper of the New York Central, read a paper on Scrap and Scrap Handling which covered much the same field as Mr. Stuart's discussion.

H. E. Ray, general storekeeper of the Atchison, Topeka & Santa Fe read a paper on The Conservation of Freight Cars which was an amplification of a report by the Committee on Conservation of Equipment of the association which was published in the *Railway Age Gazette* of March 23, 1917.

A paper on Labor and Labor Saving devices, Trucks and Tractors was presented by D. C. Curtis, Chicago, Burlington & Quincy. The discussion developed information as to the savings made in using power trucks for the transportation of material in storehouses and between points varying from a distance of 200 feet to several miles. In one instance $100 a day was saved in transporting store supplies from one storehouse to another one four miles distant; two trucks were used. The fact was emphasized that good roads are essential in order to obtain maximum economy.

Other Business

The attendance at the meeting was about 700, including 462 registered members. The following officers were elected: President, H. S. Burr, superintendent of stores, Erie; first vice-president, E. J. Roth, manager stores section, U. S. Railroad Administration; second vice-president, H. E. Ray, general storekeeper, Santa Fe; third vice-president, E. J. McVeigh, general storekeeper, Grand Trunk; secretary-treasurer, J. P. Murphy, general storekeeper, New York Central.



Elevation and Sections of the Railroad Administration Standard 2-6-6-2 Type Locomotive

The U. S. Standard Light Mallet Type Locomotive

2-6-6-2 Wheel Arrangement with Weight on Drivers of 358,000 lb. and Tractive Effort, Compound, of 80,000 lb.

THE FIRST OF THE standard Mallet type locomotives designed by the United States Railroad Administration has recently been turned out by the Schenectady works of the American Locomotive Company, for delivery to the Chesapeake & Ohio. The locomotive is of the 2-6-6-2 type and is the lighter of the two standard Mallet types, of which orders for 50 were placed in 1918, 30 of these being of the lighter type and 20 of the heavier type.

The locomotive has a weight on drivers of 358,000 lb., 2,000 lb. less than the maximum permissible within the axle load limit of 60,000 lb. The cylinders are 23 in. and 35 in. in diameter by 32 in. stroke and the locomotive is designed to deliver a tractive effort of 96,000 lb. simple and 80,000 lb. compound. In the table will be found a comparison of the principal dimensions and data for a number of Mallet locomotives of the 2-6-6-2 wheel arrangement, of which the standard locomotive is the heaviest both on drivers and in total weight.

COMPARISON OF RECENT MALLET LOCOMOTIVES OF THE 2-6-6-2 TYPE

Name of road	U.S. Std.	B.R. & P.	N. & W.	C. & O.
Year built	1919	1914	1912	1911
Builder	American	American	American	American
Tractive effort, lb.	80,000	80,000	72,800	72,800
Total weight, lb.	448,000	429,000	405,000	400,000
Weight on drivers, lb.	358,000	355,000	337,000	337,500
Diameter drivers, in.	57	57	56	56
Cylinder diameter and stroke, in.	23 & 35 x 32	23½ & 37 x 32	22 & 35 x 32	22 & 35 x 32
Steam pressure, lb. per sq. in.	225	200	200	200
Heating surface, total evap., sq. ft.	5,443	4,935	5,003	5,064
Heating surface, equivalent,* sq. ft.	7,381	6,473	6,485	6,430
Grate area, sq. ft.	76.3	72.2	72.2	72.2
Tractive effort × dia. drivers ÷ equivalent heating surface*	617.8	704.5	628.6	634.0
Firebox heating surface ÷ equivalent heating surface,* per cent	5.6	6.0	5.3	6.1

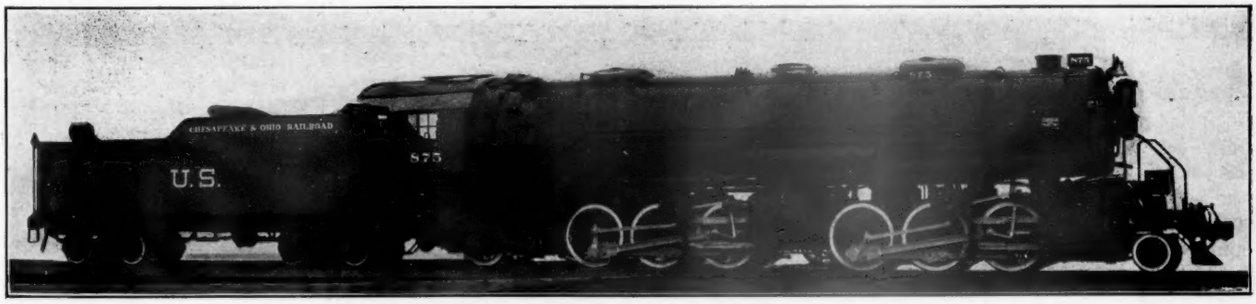
*Equivalent heating surface = total evaporative heating surface + 1.5 times the superheating surface.

The boiler has an outside diameter at the first ring of 90 in., increasing to 95 9/16 in. at the fourth ring just forward of the firebox. The dome is located on the second ring from the front, 110 15/16 in. from the combustion chamber tube sheet. It is placed over an opening in the boiler shell 31 in. in diameter, is 9 in. high and has an opening 25 in. in diameter. The dome cap used on this boiler is interchangeable with those used on all other types of standard locomotives. The shell seams are located on the top center line of the first course, on the right side 11 9/32 in. above the center line of the boiler for the second course, on the left side 11½ in. above the center line for the third course, and on the right side 37⅛ in. above the center line for the fourth course.

The firebox has a combustion chamber extending forward into the barrel of the boiler 84 in. from the throat sheet, making the tubes 24 ft. long. It is fitted with a Security brick arch carried on five arch tubes and is fired by a Standard stoker. The fire door is of the Shoemaker power operated type and the grates are operated by Franklin power grate shakers. The boiler is fitted with the Locomotive Superheater Company's Type A superheater with 45 units.

In general the detail design of the frames follows that of all the other standard type locomotives which have been built. The top rails for both high and low pressure units are 6 in. wide, with a maximum thickness of 5 in. over the pedestals and a minimum thickness of 4½ in. The lower rails have a maximum and minimum thickness of 3½ in. and 3 in. respectively. The high pressure frames are designed with splice joints at the rear for attachment to a Commonwealth frame cradle which includes in one casting the frames, rear deck plate and trailer equalizer fulcrums. The high pressure cylinders are supported on a single front rail which is cast integral with the main frames.

The low pressure frames are designed to receive the articulation joint, which is of the Baldwin universal type, hinged for movement about a horizontal axis transverse to the center line of the locomotive and provided with a ball joint pin connection at the high pressure unit end. The low pressure cylinders are supported by double rails, both of which are bolted to the main frame. The frames of both units are spaced 41 in. from center to center, while the cylinders have a spread of 85 in. Owing to the size of the low pressure cylinders the face of the lower rail bolting flange is only 20½ in. from the center line of the locomotive, thus requiring an offset in the front frame rail. This is provided by bolting the front rail to the inside face of the lower rail extension of the main frame and reducing the lateral thickness of this section to 3 in. where it is joined under the cylinder to the front rail. The section of the extension under the cylinders is 11 in. deep, while that of the front rail has a vertical thickness of 7 in. The upper front rail is bolted and keyed to the top of the main frame over the front pedestal. The section of the main frame here is 13 in. deep with horizontal slots cored for the splice bolt nuts which come directly over the pedestal. The front rail has a section 6 in. wide by 5½ in. in thickness.



Railroad Administration Standard 2-6-6-2 Type Locomotive

The cylinders and valve chambers throughout are bushed with Hunt-Spiller gun iron. In the design of the high pressure cylinders is incorporated the Mellin intercepting valve which completely controls the admission of steam, either exhaust from the high pressure cylinders or steam direct from the boiler, to the low pressure receiver pipe. Piston valves are employed with both the high and low pressure cylinders.

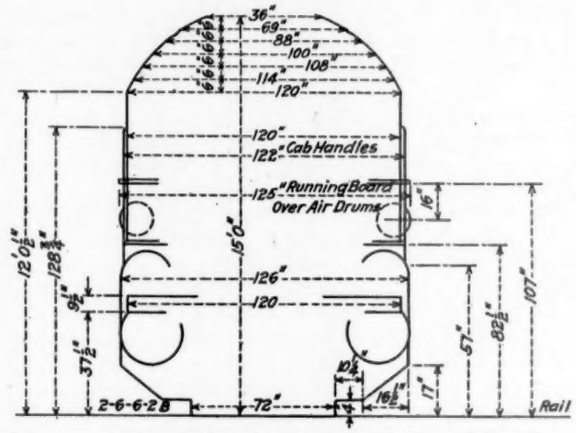
These valves are 12 in. in diameter and have a maximum travel of 6 in. The valves for the low pressure cylinders are double ported while those for the high pressure cylinders are the same as are used on the 0-6-0 type switchers. The front valve chamber heads on the 2-6-6-2 type locomotive interchange with those on all other standard types and the back heads are interchangeable with those in use on the 0-6-0 type switching locomotive.

The high pressure piston specifications call for either rolled or cast steel of dished section, while for the low pressure pistons the center of which has a diameter of 30¾ in., exclusive of the bull ring, cast steel only is specified. Hunt-Spiller gun iron bull rings and packing rings are used on both high and low pressure pistons. The design of the crossheads is the same in detail as that employed on all previously built standard locomotives, and is interchangeable with that on the 0-6-0 switchers. Paxton-Mitchell packing is fitted both on the valve stems and piston rods. Steam distribution is controlled by the Baker valve gear and the Chambers back head type throttle. The locomotive is fitted with a Lewis power reverse gear.

The driving journals throughout have a diameter of 11 in. and are 13 in. long. The driving boxes are interchangeable on all journals, except that the crown brass for the main journals is finished with a clearance of 1/100 in. instead of 1/32 in. The same driving box is also used on the heavy Mountain type locomotive, with the exception of the main journals, and on the main journals of the light Mikado type locomotive. The axles of the 2-6-6-2 locomotive are the same as those having the same journal sizes on the heavy Mountain type. The engine truck is of the constant resistance type and the trailer truck is of the Cole-Scoville type.

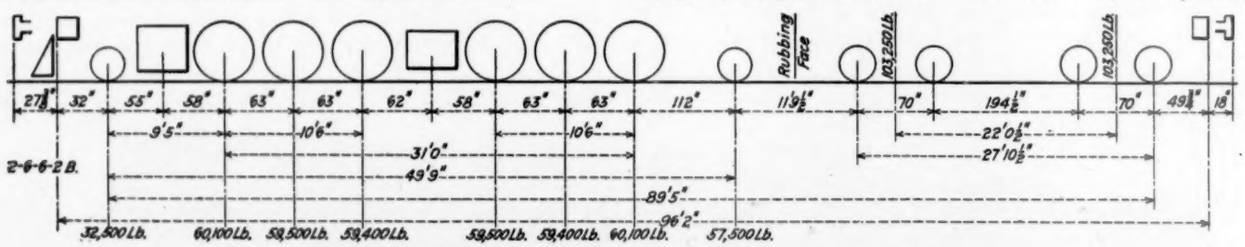
The tender tank has a water capacity of 12,000 gallons and a coal capacity of 16 tons. It is carried on a Commonwealth cast steel frame, and is one of the three standard types which have been designed to meet the requirements of all of the standard locomotives. The trucks have cast steel side frames and are of a design which is used on all the standard freight locomotives. The Unit Safety drawbar and Radial buffers are used between the engine and tender.

Wheel base, total	49 ft. 9 in.
Wheel base, engine and tender	89 ft. 5 in.
Ratios	
Weight on drivers ÷ tractive effort, simple	3.7
Total weight ÷ tractive effort, simple	4.7
Tractive effort, compound × diam. drivers ÷ equivalent heating surface*	617.8
Equivalent heating surface* ÷ grate area	100.3
Firebox heating surface ÷ equivalent heating surface,* per cent	5.6
Weight on drivers ÷ equivalent heating surface*	48.5



Clearance Diagram for the Standard Light Mallet Type Locomotive.

Total weight ÷ equivalent heating surface*	60.7
Volume equivalent simple cylinders	21.7 cu. ft.
Equivalent heating surface* ÷ vol. cylinders	340.5
Grate area ÷ vol. cylinders	3.4
Cylinders	
Kind	Compound
Diameter and stroke	23 in. and 35 in. by 32 in.
Valves	
Kind	Piston
Diameter	12 in.
Greatest travel	6 in.
Outside lap	1 in.
Inside clearance	H. P., ¼ in.; L. P., 3/16 in.
Lead in full gear	1/8 in.
Wheels	
Driving, diameter over tires	57 in.
Driving journals, main, diameter and length	11 in. by 13 in.
Driving journals, others, diameter and length	11 in. by 13 in.
Engine truck wheels, diameter	30 in.
Engine truck, journals	6½ in. by 12 in.



Weight Distribution of the Standard 2-6-6-2 Type Locomotive

Among the specialties with which these locomotives are equipped are four Coale three-inch open safety valves, No. 13 Nathan non-lifting injectors, Nathan bull's-eye lubricators, Ashton steam gages, Okadee flanged blow-off cocks and Barco flexible pipe joints.

On the diagrams, prepared by F. P. Pfahler, chief mechanical engineer, Division of Operation of the Railroad Administration, will be found the clearances and actual wheel load distribution for these locomotives. Other dimensions and data are as follows:

General Data

Gage	4 ft., 8½ in.
Service	Freight
Fuel	Bit. coal
Tractive effort; compound	80,000 lb.
Tractive effort; simple	96,000 lb.
Weight in working order	448,000 lb.
Weight on drivers	358,000 lb.
Weight on leading truck	32,500 lb.
Weight on trailing truck	57,500 lb.
Weight of engine and tender in working order	654,000 lb.
Wheel base, driving	31 ft.
Wheel base, rigid	10 ft. 6 in.
Wheel base, total	49 ft. 9 in.
Wheel base, engine and tender	89 ft. 5 in.
Trailing truck wheels, diameter	43 in.
Trailing truck, journals	9 in. by 14 in.
Boiler	
Style	Straight top
Working pressure	225 lb. per sq. in.
Outside diameter of first ring	90 in.
Firebox, length and width	114⅛ in. by 96¼ in.
Firebox plates, thickness	Sides, back and crown, ⅜ in.; tube, ½ in.
Firebox, water space	Sides and back, 5 in.; front, 6 in.
Tubes, number and outside diameter	247—2¼ in.
Flues, number and outside diameter	45—5½ in.
Tubes and flues, length	24 ft.
Heating surface, tubes	3,478 sq. ft.
Heating surface, flues	1,549 sq. ft.
Heating surface, firebox and arch tubes	416 sq. ft.
Heating surface, total	5,443 sq. ft.
Superheater heating surface	1,292 sq. ft.
Equivalent heating surface*	7,381 sq. ft.
Grate area	76.3 sq. ft.
Tender	
Tank	Water bottom
Frame	Cast steel
Weight	206,500 lb.
Wheels, diameter	33 in.
Water capacity	12,000 gal.
Coal capacity	16 tons

*Equivalent heating surface = total evaporative heating surface + 1.5 times the superheating surface.

Business Association Addresses Mr. Hines

Emphasizes Importance of Keeping at Work Industry Having 3,000 Concerns with 1,750,000 Employees

PRESIDENT ALBA B. JOHNSON of the Railway Business Association on Monday of this week addressed to Director-General Hines an extended communication in which he has requested the director-general to acquaint Congress with the extent to which the proposed capital outlays for 1919 would keep at work employees now or recently on the payrolls of railway supply industries and to recommend to the appropriation committees of the Senate and House an enlargement of the budget for improvements. In his letter Mr. Johnson has shown that the railway supply industry of the country includes from 2,000 to 3,000 firms, having in normal times about 1,750,000 employees and has emphasized that the withdrawing from the market at present price scales with the maintenance of wage scales as requested by the Secretary of Labor will mean but one thing—unemployment and resulting ill-effect on the industry itself as well as its extensive related industries. The Railway Business Association in presenting the letter to its members has suggested further, that the members and others interested can aid in the accomplishing of the recommended policy by Congress if they will propose embodiment of reference to it in resolutions of business organizations urging an extra session and prompt action relating to transportation.

The communication to Director-General Hines follows:

Pursuant to action taken by the Railway Business Association, a national organization of manufacturing, mercantile and engineering concerns which deal in railway accessories, at its annual meeting in Chicago, January 9, it devolves upon me as president of the association to address you upon the subject of additions and betterments during government control.

We have noted with gratification and hope the following paragraph contained in your letter of January 24, addressed to the secretary of the treasury:

To Stabilize Industry

"It is highly important that adequate funds for these purposes should be provided so as to give the Railroad Administration a reasonable margin for encouraging the making of such railroad improvements as may seem justifiable from the railroad standpoint, especially since such improvements will aid in stabilizing the general industrial situation."

You indicate a purpose of effecting additions and betterments during government control with assent of the railroad corporations.

An Intermediate Step

Events have shown that an intermediate step by the government is essential if general industrial conditions are to be stabilized through railway additions and betterments subject to corporate assent. That step is an adjustment of the cost so that the corporations having income based upon that of 1915-17 will not be charged with equipment or other construction acquired at war price levels. Railroad purchases have been cut to the bone. Cancellation of railroad orders has been general. Unemployment in the railway supply industries has already become serious and is spreading. Shops have begun to close down. Soldiers are coming home in quest of positions, and in the midst of a universal desire to re-employ them they are confronted with diminishing instead of enlarging opportunities for work.

On the other hand manufacturers are faced with a demand by organized labor and by a large part of the public, including the Secretary of Labor, to maintain our organizations and wage-scales. Obviously with the Railroad Administration withdrawing from the market at the current price level and the Secretary of Labor appealing to us to maintain the wage-scale which determines that price level something must give way; and what is now giving way is employment.

The Railway Business Association at its annual meeting in Chicago, January 9, adopted the following resolution:

Additions and Betterments

"During the period of government control additions and betterments should proceed with vigor and foresightedness. Discretion should be permitted the railway corporations in determining the design and amount of facilities which they will acquire. The government should provide for corporate co-operation in projects for terminals, way and structures, so as to promote joint use and an avoidance of needless duplication. The government should make such allowance in terms of purchase that the corporations will not carry the whole burden of war prices while their income is based upon that of 1915-17. *Government loans should be funded for such periods and at such rates of interest as will give each carrier reasonable opportunity to discharge all financial obligations to the government."*

While properly ordering your course from the administrative point of view, may you not appropriately lay before Congress the dilemma in which the equipment industry is placed and suggest that Congress recognize the wage and price situation as an outgrowth of the war which requires a part of the cost of railway additions and betterments to be absorbed not by the corporations, whose income has stood still, but by the federal treasury?

Government and Unemployment

General business depressions in the past have been accentuated and prolonged by the cessation of railway purchases, while general business prosperity has been enlarged and protracted by resumption and continuance of railway buying. One of the advantages claimed for government ownership and operation of railroads has been that in time of unemployment the public credit would permit the prosecution of projects giving employment to men otherwise idle. If there ever was a time when the use of public credit was justified for maintenance of employment, it is now when an army of young men is being demobilized in the midst of industrial depression. Yet the government itself through the Railroad Administration is postponing every expenditure that can be postponed.

Returning Soldiers

It is announced that soldiers not yet re-employed in civil life will be retained in army service until they find work. This will involve continuance of soldiers' pay and families' allowances as well as maintenance of the soldiers in camp. The government thus commits itself to expenditures for the object of relieving or mitigating the privations incident to readjustment. Would not there be even completer justification for government expenditure to employ men in the production of railway facilities? Even though the high industrial wage scale compels a higher range of prices than the railway corporations ought to be asked to pay, and though the government therefore must defray the excess over normal costs, the man placed or kept upon the payroll would

be engaged, unlike soldiers at camp, in producing instrumentalities of industry and commerce. The country will live to deplore any present neglect of provision for future traffic needs. Losses due to restricted transportation facilities in a period of great activity might easily be greater than the cost of stabilizing employment now by carrying through a budget of additions and betterments approaching in extent the provision made in some years of the past.

A Million and Three-Quarters

We speak for a group of industries estimated to have employed when times were good about one and three-quarters enlargements of plant. They have been employing greatly increased numbers of men and women. They are now equipped with plant and people in substantially larger numbers than the estimate given above ready to work upon the production of railway supplies if ordered.

Railway purchases ramify into almost every conceivable commodity. The group of industries which our association serves is believed to number between 2,000 and 3,000 concerns whose product wholly or to an important extent is consumed by railways or by other concerns making goods for railways. These companies maintain principal or branch plants in practically every state in the union, in some cases several in a state.

This is not all. The influence of railway purchases extends far beyond those engaged in a whole or in part in the railway supply industry. A cessation of railway additions and betterments puts a blight upon a great many other people. It cuts off the greatest single market for iron and steel, lumber and practically every basic staple. It puts a brake upon the great building and construction industry, which suffers when our people cease to build factories, and hence there is no building of homes for employees. It stops the consumption of machinery and other equipment and supplies for mills. By playing havoc with the industrial payroll in many communities where these railway supply plants are located, it knocks the bottom out of retail trade and hence reacts unfavorably upon the whole community and upon industries everywhere which furnish goods for domestic consumption.

Many Millions Affected

We have already remarked that concerns, the whole or a large part of whose product was for railways, including everything from raw material to finished products, have employed about as many men as the railways employ—or upwards of one million and three-quarters. We have seen that those looking to these industries for livelihood largely increased in number since that estimate was computed. With those dependent upon them the number directly affected aggregates many millions. Add to these the people of the manufacturing communities who are engaged in trade and in making articles which are bought for consumption by those on the industrial payroll, not to mention the stockholders in all these industrial and commercial institutions, and it is evident that the rise and fall of activity in railway supplies is a barometer of the whole national prosperity.

What Production Is Proposed

As trustees for the stockholders and employees we, the managers of these industries, invite your consideration of certain details of fact.

Stating the conclusion first and the fact afterwards, that conclusion is that the proposed provision for additions and betterments in 1919 expressed in dollars is substantially less than the new capital put into railway improvements even in the years immediately preceding the war, not to speak of years when net earnings were more favorable; and that upon the level of labor and material cost now prevailing the proposed estimate of money would produce very greatly smaller numbers of equipment and construction units and hence employ proportionately fewer people in the industries than would have been the case in past years.

From the annual statistical numbers of the *Railway Age*, we take the following tables, in each year going back to the date in which that periodical began to tabulate the figures:

MILES OF NEW TRACK BUILT (LINEAR AND MULTIPLE)

Year	Miles	Year	Miles
1912	4,211	1916	1,441
1913	4,466	1917	1,656
1914	2,127	1918	1,537
1915	1,354		

FREIGHT CARS BUILT

(From 1902 to 1907, Inclusive, including Passenger Cars)

Year	Domestic	Foreign	Total	Year	Domestic	Foreign	Total
1899	117,982	1,904	119,886	1909*	91,077	2,493	93,570
1900	113,070	2,561	115,631	1910*	176,374	4,571	180,945
1901	132,591	4,359	136,950	1911*	68,961	3,200	72,161
1902	161,747	2,800	162,599	1912†	148,357	4,072	152,429
1903	153,195	1,613	152,801	1913†	198,066	9,618	207,684
1904	60,955	1,995	60,806	1914†	.....	.....	104,541
1905*	162,701	5,305	165,155	1915†	59,984	14,128	74,112
1906*	236,451	7,219	240,503	1916†	113,692	21,309	135,001
1907*	280,216	9,429	284,188	1917†	119,363	32,038	151,401
1908*	75,344	1,211	76,555	1918†	81,767	42,941	124,708

LOCOMOTIVES BUILT

Year	Domestic	Foreign	Total	Year	Domestic	Foreign	Total
1896	866	309	1,175	1908*†	1,886	456	2,342
1897	865	386	1,251	1909*†	2,596	291	2,887
1898	1,321	554	1,875	1910*†	4,441	314	4,755
1899	1,951	514	2,475	1911*†	3,143	387	3,530
1900	2,648	505	3,153	1912†	4,403	512	4,915
1901	.....	.....	3,384	1913†	4,561	771	5,332
1902	.....	.....	4,070	1914†	1,962	273	2,235
1903	.....	.....	5,152	1915†	1,250	835	2,085
1904	.....	.....	3,441	1916†	2,708	1,367	4,075
1905*	4,896	595	5,491	1917†	2,585	2,861	5,446
1906*	6,232	720	6,952	1918†	3,668	2,807	6,475
1907*	6,564	798	7,362				

*Includes Canadian output.
†Includes Canadian output and equipment built in company shops.

Terminal construction and improvement seems not to be recorded statistically but the tendency through a period of years would be suggested by the figures for miles of track built.

A Significant Comparison

Would you not think it advisable to acquaint the appropriation committees of Congress with the extent of proposed additions and betterments in 1919 expressed not in dollars but in units of equipment and plant? A comparison of what is projected with actual additions and betterments in past years would enable Congress to measure the extent to which a $750,000,000 addition to the revolving fund would in your judgment "aid in stabilizing the general industrial situation." By such a comparison, taking into consideration the current altitude of industrial wages and of prices for material depending upon the wage-scale, Congress would be placed in position to authorize if this is its purpose such railway improvements during government control as would meet future traffic needs on the one hand and employ labor on the other.

A Question of Legislative Policy

Undoubtedly you will regard this as a legislative question; a policy which Congress should decide and which if authorized it would be your function to administer. Nevertheless the proposal of a five-year extension of government control must necessarily have contemplated some arrangement by which the corporations could acquire title to new property upon terms equitable to them. May we not suggest that you recommend such adjustment for adoption forthwith?

The Canadian National Railways on Prince Edward Island, which are narrow gage, are having a third rail laid on about sixty miles of the more important sections of the lines on the island with a view to running freight cars from the continent through to the principal places on the island. Standard gage freight cars are taken to the island by a car ferry between Cape Tormentine, N. B., and Borden, P. E. I.; but freight for inland points on the island has to be transferred at Borden into narrow gage cars.

Use of Treated Timber in Car Construction*

Influence of Decay on Life of Wooden Car Parts; Methods of Treating and Results Secured

OVER TWO BILLION feet of lumber and timber are used annually for the maintenance of railway freight equipment and for the construction of new cars. This represents an annual outlay for material alone of approximately $60,000,000. To this must be added, of course, an even greater expenditure for labor, steel and other material. With a view of ascertaining the service which untreated wood has given in this character of construction and with the desire also to learn to what extent it has given added service in specific cases through wood preservation, and to what extent economy would be developed by the general adoption of the practice of wood preservation, and further, as the subject is of very pertinent interest at this time, the committee felt it advisable to make this study a subject of special investigation, both through the medium of a questionnaire to all car builders and by means of personal study.

The preliminary investigation developed that there was very little information available on this subject. As it was felt that it was a matter of great importance, and that it should be gone into thoroughly and fully, a questionnaire was prepared and sent to the members of the Master Car Builders' Association.

The questionnaire covered the following information, which, it was felt by the committee and collaborators, was necessary to a thorough fundamental study of the subject:

For Car Construction—(a) Availability, cost and quality of lumber and timber. (b) Suitability and economy of wood. (c) Factors affecting the physical and mechanical fitness of wood. (d) Importance of the assistance it may be possible to render the nation and railroads by augmenting the car building program by the extensive use of wood.

TABLE 1—SUMMARY OF REPLIES TO QUESTION NO. 1

Percentage of Maintenance Due to Decay Grouped According to Expressions of Respondents (Number of Replies Given)

Type of cars	75 per cent and over	50 to 75 per cent	25 to 50 per cent	Less than 25 per cent	Indicating Considerable loss due to decay	Refuting influence of decay	No Reply	Total Questionnaires tab.
Ref	11	7	8	3	18	5	9	61
Stock ..	4	11	9	9	14	2	12	61
Gond. ..	2	9	12	12	13	3	10	61
Flat. ...	1	14	7	17	8	4	10	61
Box	0	7	7	25	9	3	10	61

Note—Approximately 77½ per cent of those replying indicate that decay is decidedly an important contributing factor.

Eighty-eight questionnaires were returned representing about 75 per cent of the most important railroad systems of the country. Of these, 61 were analyzed and the replies summarized in tables published in the appendix, 21 were discarded for lack of information, and six were too late to be included in this report.

Results of Investigation

Question 1. To what extent, in general, does decay influence maintenance of all-wood and composite freight cars? (i. e., general observations from practical experience desired.) (a) Refrigerator cars? (b) Stock cars? (c) Gondolas? (d) Flat cars? (e) Box cars?

Over 75 per cent of the replies indicate that decay influences the maintenance of wooden freight equipment to a considerable extent, and only 9 per cent have given it as their opinion that decay is not a contributing factor. The indications are that conditions favorable to decay vary with the type of car, it being most predominant in refrigerator and stock cars, less in gondola and flat cars, and least in box cars.

Question 2. What portions of these various types of cars are most affected by decay? (i. e., where is decay the direct cause for replacements and repairs, or indirectly the cause of mechanical failure due to the weakening of certain parts resulting from attack by decay?) (a) Underframe (name parts)? (b) Superstructure (name parts)?

TABLE 2.—SUMMARY OF REPLIES TO QUESTION NO. 2 (a)

a—Underframe—Parts repaired or replaced due to decay previous to the expiration of the mechanical life. Number of replies referring to each part are given.
Points of contact are chiefly referred to, i. e., mortises, tenons and enclosed areas

Type of Cars	Sills in general	End sills	Side sills	Intermediate sills	Center sills	Floors or decking	Nailing strips, Composition Cars	Draft timbers or sills	Body Bolsters	Hoppers	Cross ties
All types....	24	10	9	4	5	11	1	3	2	..	1
Refrigerator..	13	3	9	1	..	11	..	3	3	..	..
Stock	8	4	8	1	..	12	..	..	..	..	..
Gondola	9	4	4	3	1	10	..	..	..	1	..
Flat	9	2	3	2	..	9	1	..	..	..	..
Box	2	3	10	..	..	..	..	..	..	..	..

Note—Sixty questionnaires analyzed. Two gave no reply to Q. 2-A.

(a) Over 95 per cent of the replies specify sills and about 90 per cent state that floors or decking of refrigerator, stock and open cars are replaced because of decay. The predominating opinion is that the points of contact are chiefly affected and weakened to such an extent as to cause mechanical failure of the entire parts. (b) Posts and braces, roof boards and siding at the points of contact, appear to be most affected. Other parts mentioned which are subject to failure due to decay are: Running boards, saddles, side and end plates, ridge poles and purlines.

Question 3. What species of wood do you employ for the following parts of refrigerator, stock, flat, gondola and box cars? (a) Draft timbers? (b) End sills? (c) Side sills? (d) Intermediate sills? (e) Flooring? (f) Posts? (g) Siding? (h) Lining? (i) Ridge poles? (j) Purlines? (k) Carlines? (l) Side and end plates? (m) Roof deck?

The prevailing practice is to require oak for draft timbers, end sills, posts and braces. Douglas fir and Southern yellow pine are generally used for all other purposes. The pine predominates owing to the nearness of the plants to the source of supply. In new construction, steel is very largely used

TABLE 3.—SUMMARY OF REPLIES TO QUESTION 2 (b)

b—Superstructure—Parts repaired or replaced due to decay. Number of replies mentioning each part given.

	Posts and Braces	Roofs, decks or roof boards	Ridge pole and Roof nailers	Hatches and ice boxes	Running boards and saddles	Side plates	Siding	Sheathing inside and end	Stakes	Purlines	Top plates
All types.....	31	14	4	..	5	7	9	2	..	1	3
Refrigerator ..	8	7	..	6	..	2	1	3	..	..	1
Gondola	..	..	..	..	..	..	5	..	2	..	..
Stock	9	4	..	..	..	2	1	..	..	..	..
Flat	..	..	..	..	..	..	..	..	..	..	..
Box	8	9	..	..	..	..	2	1	..	..	1

Note—Sixty questionnaires analyzed. Three gave no reply.

* From a report presented at the convention of the American Wood Preservers Association held in St. Louis on January 28 and 29.

in center sills, and to some extent for side sills and for draft rigging.

Question 4. What service records have you which are available for the study of this subject? (a) Natural life of untreated car materials (name parts).

Ninety-three per cent of the answers stated "No record." The remainder report as follows: Sills, five to eight years; roofs, four to six years; flooring (stock cars), four to six years; posts and braces, six to eight years.

Question 5. Have you used treated timber in car construction? If so, state kind and character, species and treatment.

Eighty-five per cent answer "No." Fifteen per cent reply "Yes," representing 10 railroads which have used coal tar preservatives, creosote oil, paint and other proprietary products.

Question 6. What has been the experience with treated car material, if any? Please state this in detail, by reference to part and character of service.

Eighty-five per cent of the answers stated "No experience." The balance report varying experience referred to in later questions.

Question 6-A. Does the handling of creosoted material in the shops present any labor problem?

Replies from the few firms having experience indicate that labor objects to handling freshly creosoted timber. (The committee feels that this is not a serious objection as it can be overcome by proper practices.)

Question 7. What service records can you give of treated car material?

Ninety-five per cent of the replies give no information, but 5 per cent of the replies give the following records: Reply No. 48. Treated refrigerator car sills in service from three to seven years. Reply No. 30. Treated log car sills in service eight years. Reply No. 26. Treated stock car sills and flooring in service six years. All of the above treated material is still in good condition.

Question 8. If creosoted sills are employed for refrigerator, box, stock and gondola cars, can all stenciling be applied to the body of the car?

Fifty per cent of the replies state "Yes" and 15 per cent state "No." The remainder do not reply.

Question 9. If creosoted sills are employed for flat cars would it be practical and economical to use metal numerals and signs to replace stenciling?

Over 60 per cent state it is practical. Opinion is evenly divided as to whether it is economical.

Question 10. If stock cars are built of creosoted lumber throughout, would it be practical and economical to use sign boards on both sides for all stenciling?

Over 95 per cent agree that it is both practical and economical.

Question 11. Would it be satisfactory practice to use creosoted sills, sub-flooring and roofing for refrigerator cars? If not, why?

Opinion appears to be evenly divided as to whether creosoted material may be expected to contaminate lading, but one firm with several years' experience states that such practice is satisfactory.

Question 12. What is the mechanical life of the various types of cars, as follows: (1) Wood? (2) Composite (steel underframe)? (3) Composite (steel center sills only)? (a) Box? (b) Refrigerator? (c) Stock? (d) Flat? (e) Gondola?

It is evident from the character of replies to this question that the respondents had in mind the mechanical life of the car as meaning the full period of its usefulness, from the time of construction to the time the car is "wrecked" or dismantled, as being unprofitable, disregarding the outlay of repairs expended on it or the extent to which reconstruction was necessary at any time. In this case the committee feels a more reasonable definition of "mechanical life" would be the period required in which the expenditure for repairs, with interest, equaled the original cost of the car.

Question 13. Would the use of creosoted timber in frame and superstructure materially increase the period of mechanical usefulness of all types of cars, or any particular type?

Eighty per cent of replies say "Yes," and 20 per cent say "No."

Question 14. To what extent would the use of creosoted sills, flooring, posts, roofing, etc., reduce repairs?

Over 80 per cent of the replies indicate that treatment would reduce repairs. The percentage of saving varies from less than 25 per cent to more than 50 per cent.

Question 15. Have you had experience with brush treatment of sills (mortises, tenons, ends, etc.) with coal tar or creosote?

About 65 per cent report having experience with brush treatment. Ten different products were used.

Question 16. Have you had experience with treating car material by the open tank system (hot and cold treatment) or by dipping (short immersion) using creosote oil? (a) If so, what procedure was followed in the treatment and what preservative was used? (b) What were the results obtained, and what is your opinion of the value of such treatment?

Less than 10 per cent report experience. Only one employs the standard open tank process and states that "Such

TABLE 4—SUMMARY OF REPLIES TO QUESTION NO. 3

Number of references to various species for different parts given

Part	White oak	Red oak	Oak general	So. Y. Pine	Fir Douglas	Maple	Norway Pine	White Pine	Hemlock	Fir Noble	Hickory	Red gum	Spruce	Cotton Wood	Tamarack	Cypress	Mal iron or steel	Total ref's to parts
Species of Wood used by																		
Draft Timber ....A	7	1	47	3	1	2	..	..	..	..	..	1	..	..	..	..	9	70
End sills ....B	8	..	44	8	5	1	..	..	..	..	..	..	..	..	..	..	..	66
Side sills C	..	..	3	46	15	..	..	..	..	..	..	..	..	..	..	..	2	66
Inter sills ....D	..	..	2	46	15	..	..	..	..	..	..	..	..	..	..	..	1	64
Flooring ....E	..	..	5	46	14	2	1	..	..	..	..	..	..	..	2	1	..	71
Posts ....F	5	2	37	19	14	1	..	1	..	1	1	1	1	..	..	..	..	83
Siding ....G	..	..	..	43	16	..	..	2	..	1	..	..	..	..	..	1	..	63
Lining ....H	..	..	..	41	12	..	5	1	3	..	..	..	2	1	1	..	..	66
Ridge poles I	..	..	1	44	14	1	..	1	..	..	..	..	1	..	..	..	..	62
Purlines ....J	..	..	2	44	14	1	..	1	..	..	..	..	1	..	..	..	..	63
Carlines ....K	1	1	26	28	11	3	3	1	..	..	..	..	1	..	..	..	..	75
* S. & E. plates....L	2	..	29	39	12	2	1	1	..	..	..	..	..	..	1	..	..	87
Roof deck ....M	..	..	..	43	13	..	1	5	1	..	..	..	..	..	..	2	..	65
Total references to species..	23	4	196	449	156	13	11	13	4	2	1	2	6	1	4	4	12	901

* End plates usually specified oak. Side plates, pine or fir.

treatment very greatly increases the life of the materials treated."

Question 17. Have you employed car lumber creosoted by standard pressure processes? (a) If so, what species? (b) What specifications for treatment and preservative were followed? (c) What have been the results, and what is your opinion of the value of such treatments? (d) Have you used any other method of treating for the purpose of retarding decay? (If so, mention material used with results.)

But one firm reports experience with pressure treatment, having used with satisfactory results, both straight creosote and the Card process.

Question 18. To what extent would your shop practice be affected by the introduction of treating processes and what method of preservative treatment would be the most practical, efficiency thereof considered?

The majority feel that shop practice would be affected to a greater or less degree by the adoption of wood preservation, indicating that the introduction of preservative treatment would necessitate at least some changes.

Miscellaneous Data

Question 1. What experience have you had with the use of "new" species of wood in car building? (e. g., have you used Sitka spruce, noble fir, Western white fir, or other species which are not common?)

The replies showed the new species used for various parts of cars were as follows: Roofing—Western hemlock, redwood, cypress, Sitka spruce, noble fir. Siding—cypress, Sitka spruce, noble fir. End sills—gum. Lining—noble fir. Decking—noble fir. Sheathing—Port O cedar. Posts and braces—Sitka spruce.

Question 2. To what extent have you used hardwoods such as oak, maple or birch, for flooring in cars subject to excessive mechanical wear? (a) Do you consider the extra life of hardwood parts justifies the expense?

Oak and maple are generally used in ore cars and to some extent in flat and gondola cars. A few firms report use of birch, hickory and beech for such purposes, and a few use pine or fir in these types of equipment. (a) More than 70 per cent of replies indicate that extra cost of hardwood parts is justified by greater life.

Question 3. What is the average amount of car stock kept on hand at your shops or yards? (a) Is this stock stored in sheds? (b) What is the percentage of loss from warping, weathering and decay? (c) What difficulties do you have in getting car stock true to grade and properly seasoned? With what species have you had this trouble?

Reports indicate that smaller shops carry from 60 to 90 days' stock whereas those which consume over 40,000,000 ft. per year carry a 12 months' supply of soft woods and an even longer supply of hardwoods. The practice of carrying a year's supply in order that the wood may become properly seasoned before use is to be commended very highly. It is essential that wood be thoroughly seasoned where it is to be given preservative treatment. (a) Replies indicate that the general practice is to store dressed lumber, kiln-dried stock and high-grade hardwoods in sheds. (b) Three-quarters of 1 per cent on the average is the loss from warping, weathering and decay. (c) Replies indicate that in recent years increasing difficulty has been experienced in securing satisfactory grades of oak and other hardwoods.

Question 4. What efforts are made toward salvage of old car lumber at repair shops?

A general effort is apparent throughout the industry to salvage all material that can be worked over at a profit. The following instances of use for salvaged lumber are given: Old siding and lining cut into roof repairs, grain doors, coal doors, yard and snow fences. Old car sills cut into sill splices, cross-ties, engine wood, shims, car stakes, narrow gage ties, cripple posts, running board saddles, blocking, framing posts. Old roofing cut into yard fencing.

Question 5. What is the comparative life of single sheathed and double sheathed box cars of similar weight and capacity?

Three firms report the double sheathed box car has up to 25 per cent longer life than single sheathed. Four firms report single sheathed up to 50 per cent longer life than double sheathed. Four report that the life of the two classes of car is practically identical. The remainder report no figures available.

The report was signed by H. S. Sackett (C., M. & St. P.), chairman; K. C. Barth (Barrett Manufacturing Company), chairman sub-committee on Car Construction; Lowry Smith (N. P.), F. V. Dunham (Southern Pine Association), W. W.

TABLE 17—SUMMARY OF REPLIES TO QUESTION 15

Tabulation of replies, number who used some sort of brush treatment—what product and whether satisfactory

Brush treatment used 37		No statement 3	
Number of replies	Products used	Satisfactory	Unsatisfactory
8	Creosote	8	0
2	Coal tar	2	0
1	Carbolineum	1	0
18	Paints	13	5
5	Wood tar preservatives	4	1
2	Proprietary asphalt waterproofing products.	2	0
1	Carglue	1	0
37		31	6

TABLE 14—SUMMARY OF REPLIES TO QUESTION 12

WHAT IS THE MECHANICAL LIFE OF THE VARIOUS TYPES OF CARS?
Sixty-one Questionnaires Analyzed to November 5, 1918
Mechanical Life as Stated by Questionnaire

	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	25	26	28	30	35	40	No reply
Box Cars																								
Years life																								
Wood	..	2	3	1	..	5	..	4	1	..	4	3	..	4	..	13	1	3	..	..	4	..	..	13
Composite, steel underframe	..	..	..	2	..	2	..	..	..	1	2	..	1	2	..	4	..	6	1	..	4	..	1	35
Composite, steel center sill	..	..	1	..	1	1	..	1	..	..	3	..	..	3	..	4	1	4	..	..	..	..	..	42
Refrigerator Cars																								
Years life	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	25	26	28	30	35	40	No reply
Wood	1	4	1	1	..	5	..	1	..	1	7	2	..	2	..	2	..	3	..	..	1	..	..	30
Steel underframe	..	1	1	..	1	..	1	5	1	..	..	..	..	..	1	1	..	1	1	..	5	1	..	41
Steel center sill	..	1	1	1	..	2	..	2	..	1	..	1	..	..	..	2	..	2	..	1	..	..	..	47
Stock Cars																								
Years life	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	25	26	28	30	35	40	No reply
Wood	1	3	1	4	1	4	..	2	1	..	2	2	..	1	2	10	1	3	..	..	..	..	..	23
Steel underframe	..	1	..	..	1	2	..	2	..	..	2	..	..	..	1	4	..	2	1	..	2	2	1	40
Steel center sill	..	1	..	1	..	3	..	1	..	..	2	1	..	1	..	4	..	1	..	..	..	..	..	46
Flat Cars																								
Years life	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	25	26	28	30	35	40	No reply
Wood	1	3	..	4	..	9	..	..	..	3	6	1	2	2	..	7	..	4	..	..	1	..	..	18
Steel underframe	..	1	..	1	1	1	..	1	..	..	8	1	..	2	..	2	..	4	1	..	3	1	..	34
Steel center sill	..	1	..	1	..	1	..	3	..	2	1	..	..	..	1	3	1	1	..	..	..	1	..	45
Gondola Cars																								
Years life	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	25	26	28	30	35	40	No reply
Wood	3	2	..	2	..	9	..	1	..	1	9	1	2	1	..	7	..	2	..	..	2	..	..	19
Steel underframe	..	1	..	2	..	2	..	..	..	2	2	1	..	1	..	4	..	3	1	..	3	1	..	38
Steel center sill	..	1	..	1	..	2	1	1	..	2	1	..	..	2	..	3	..	1	..	..	1	..	..	45

Note.—Where the reply stated a term of years, i. e., "from 6 to 8 years," an average of the two figures was used in summary, i. e., 7 years.

Lawson (T. & N. O.), V. R. Hawthorne, acting secretary Master Car Builders' Association, and S. W. Allen, United States Forest Products Laboratory.

Discussion

J. H. Waterman, superintendent of timber construction, Chicago, Burlington & Quincy, reported that large quantities of timber had been treated and used in the construction of stock cars during the period from 1911 to 1914, inclusive. Recent investigation at all car repair yards on the system indicated that there was no record of any of these cars having been repaired to date, because of the decay of the treated timber. This treated timber was used for floorings and sills; the average life of untreated timber for these purposes is three or four years.

L. K. Sillcox, master car builder, Chicago, Milwaukee & St. Paul, at Milwaukee, urged the treatment of car roofing timbers and the material in stock cars.

J. H. Milton, superintendent of the car department, Rock Island Lines, favored the treating of longitudinal sills, posts and decking for gondola and stock cars, but opposed the creosoting of timber for box and refrigerator cars, because of danger of injury to the lading.

American Association of Passenger Traffic Officers

THE SIXTY-THIRD ANNUAL CONVENTION of the American Association of Passenger Traffic Officers was held at Baltimore on January 22, following a short session at Washington at which Walker D. Hines director general of railroads, delivered the address which was published in last week's issue. Little business was transacted at the meeting, as most of the subjects which have usually been included in the association's docket are now being handled by the Railroad Administration. Many of the changes in the handling of passenger traffic which have been adopted during the past year, such as the standardizing of ticket forms, baggage rules and other practices, the rule against making Pullman reservations in advance of purchase of ticket and the surcharge for Pullman passengers, which was later withdrawn, originated with the association, which was not, however, able to put them into effect generally because its decisions were only recommendatory. The principal purpose of the meeting was to get the passenger officers together to meet the director general and to give them a better understanding of some of the purposes and policies of the United States Railroad Administration.

O. P. McCarty, president of the association, delivered a brief opening address in part as follows:

"On account of the participation of the United States in the world war and the taking over of the railroads by the federal government the question of abandoning the sixty-third annual convention of this association was seriously considered, but your officers, after conference with the United States Railroad Administration, decided in favor of holding it.

"It is very gratifying to me, and I am quite sure equally so to all of you, that we are able to hold our annual meeting, and to have such a representative attendance.

"This is the oldest railroad organization in the United States, and during its 63 years' existence not a single annual meeting has been missed.

"In its early history it was a legislative body, holding two sessions per annum, at which interline passenger fares were compiled, and rules and regulations concerning the conduct of passenger traffic and allied subjects were considered and adopted. The joint rate sheets of those times were about the size of pages of the present tariffs, and but four to eight pages covered all the leading points and destinations required for the entire rate fabric of all the railroads.

"In those days the general ticket agents disposed of the miscellaneous subjects on the convention docket, and then adjourned for five or more days until the rate committees' report was completed and ready for submission. Upon the growth of the passenger traffic, the machinery of the association, with two meetings a year, was found too slow, and territorial associations were formed, with more frequent sessions, and the rate making divided into groups covering important districts or cities. Following these changes but one session a year of the general association has been held.

"Under these changed conditions our association is not, strictly speaking, a legislative body with authority to take final action, but through its committees has initiated many reforms, which when referred to the territorial organizations with the endorsement of this association, have been favorably acted upon.

"The interchange of views between members brought together at these annual meetings is educational, and through its committees the association has been of valuable assistance to the territorial committees, and we believe will be to the regional passenger traffic committees as now organized, aside from the social and fraternal benefits. We believe the association has a wide field of usefulness in the future as in the past, and the subjects listed in the dockets should be carefully selected and seriously considered.

"The activities of this association have been exercised through great epochs in the history of our country—notably: the Civil War, the Spanish-American War, and the world war, recently brought to a close. In all of these crises the United States responded nobly to the call, in blood, in money and sacrifices, to maintain the honor and glory of the flag.

"The railroads performed their share with patriotic zeal, and by furnishing the transportation needed contributed largely to the winning of these wars; furthermore, the prompt assembling of troops at the border no doubt prevented a Mexican invasion.

"To meet necessities growing out of the war the railroads were taken over December 28, 1917, and have been operated by the government from that date. Changes in operating and traffic methods were inaugurated for the better movement of troops, war materials, etc.; economies were effected in the consolidation of ticket offices, elimination of outside agencies, reduction in train service, curtailment of advertising, etc. A material advance in passenger fares was also made.

"Some of these changes would have been made by the carriers if they had not been prohibited by federal or state laws. The public have been benefited and service improved in some instances, but when the contrary was the case they have submitted graciously and loyally to a war necessity.

"The officials and employees of the railroads, including those in the passenger departments, have patriotically and faithfully performed the tasks assigned them under the new regime, and whether the railroads are to be operated in the future by the government or by the owners they can be relied upon to loyally do their part. In conclusion let us hope that permanent world peace will come out of the horrors of the past four years."

Officers for the ensuing year were elected as follows: President, W. J. Black, passenger traffic manager, Atchison, Topeka & Santa Fe; Vice-president, W. A. Russell, passenger traffic manager, Louisville & Nashville; secretary, W. C. Hope, passenger traffic manager, Central of New Jersey, New York City; chairman of executive committee, L. F. Vosburgh, passenger traffic manager, New York Central. The other members of the executive committee are T. C. White, G. D. Hunter, Cal E. Stone, Gerrit Fort, Alexander Hilton, J. J. Brown, and W. G. Black.

Head of State Lines Opposes Government Operation

Sir William Hoy, South African Official, Says It Causes Political Meddling and Costly Transportation

GOVERNMENT OPERATION of railways is generally a failure; state ownership with private operation combines the advantages of railway nationalization and private enterprise in the field of transportation. Such is the substance of the opinions of Sir William Wilson Hoy, general manager of Railways and Harbors of the Union of South Africa, as presented in a hearing before the State Mining Commission of that country.

While the subject of the investigation was the proposed nationalization of mines, Sir William Hoy's testimony was presented for the purpose of outlining the experience of South Africa and other countries under government and private operation of railroads. His testimony was especially interesting because of his long experience as a manager of government operated railroads. Although he admitted that differences in conditions—political, geographical and economic—produce varying results under like schemes of management, experience in practically all countries shows that politics persist in creeping into state railway organizations regardless of the statutory or other safeguards applied; that the morale of officers and employees is lowered and discipline seriously disturbed; that exorbitant wage demands are encouraged, over-centralization stimulated and rigidity of policy fostered. While initiative and efficiency are generally found in private enterprises, they are rarely evident in government organizations.

Sir William Hoy's remarks before the commission were in part as follows:

South African Experience with State Rail Service

The efficiency of officers and men on the South African railways is of a high standard. In capacity, experience, ability and resource they compare favorably with any similar body of men in any railway service or in any private organization. The Union possesses a staff of railwaymen of which any may be proud.

Nevertheless, South African experience indicates that certain disadvantages attach to state services, and that much of the time and energy of the staff are taken up with matters with which no private management would be required to deal. Staff control and discipline in a state concern are so bound up by regulations as to create greater difficulties in handling the staff than are experienced under private management—*vide* the experience of Belgium, where it is said that political considerations have so entered into discipline matters that heads of departments prefer to shut their eyes to many faults rather than risk having punishments they inflict cancelled by the intervention of politicians.

It is difficult under a semi-judicial system efficiently to control a large body of men of different grades, such as is employed in a railway service. The service and discipline regulations on the South African railways are elaborate and cumbersome. While there are excellent motives behind these regulations in the direction of preventing injustice and insuring impartial consideration of discipline cases, I am satisfied that fair treatment can be secured to the staff without such elaboration.

In large private railways there is practically the same stability of employment as on a state railway, except that anything in the nature of "slacking" is liable to result in dismissal. In state concerns, however, it is not easy to deal with the man who while not doing an honest day's work carefully steers a course which just keeps him within the regulations. This class of man is fortunately small, and will be found in any concern, but he is better able to indulge his bent in a state than in a private organization. In short, there is not in state concerns the same elasticity in the control of staff as in private organizations.

On the other hand, with regard to promotion and reward for good work, considerations of seniority play a greater part in a state than in a private concern in governing promotion. A private manager can promote a capable man without regard to seniority, but a state concern has to step guardedly in such matters. It is extremely difficult to demonstrate in concrete fashion that one particular man is more efficient than another, however superior he may be. If seniority be made the sole factor in determining promotion one of the main incentives to efficiency disappears, and the service suffers accordingly. Fortunately, the statutory provisions governing promotion on the South African railways prescribe that preference shall be given to the efficient. On private railways some appointments and promotions are the result of patronage, and even favoritism, and I consider that in the Union railway service an able man has opportunities quite as good as, if not better, than he would have in private employ.

There is a regrettable tendency for individuals in state employ to bring parliamentary influence to bear in regard to alleged grievances; and in this, they are frequently encouraged by legislators anxious to make political capital out of such cases. Minor complaints are, therefore, frequently debated in Parliament purely on political grounds. It is obviously impracticable and undesirable for the machinery of Parliament to be utilized to perform the functions of appeal boards already in existence. Parliament has not the time, even if it did have the complete evidence, to do justice either to the men or to the administration.

The same applies to many other details which, on a private railway, would not be considered sufficiently important to place before the general manager.

Matters in themselves trifling assume unwarranted importance by reason of their entry into the arena of politics, and thus occupy much of the time of the principal executive officers, which should be devoted to constructive work. Moreover, undue influence on the executive authority is attended with a broader disability, in that it operates against adequate decentralization—the essence of efficient organization.

Efficiency of Government Lines and Private Roads

What Constitutes Efficiency in Railway Management?—Considerable vagueness frequently exists as to what actually constitutes efficiency in railway management. It is misleading to judge a railway's efficiency by particular details, and I conceive that such must be determined by the following broad consideration, viz.:

(a) The maximum possible development of agricultural, industrial and commercial activity by means of cheap and well designed tariffs, and by efficient and expeditious service;

(b) The full development of passenger traffic by means of cheap fares, comfort and speed of traveling.

The principal means of insuring relatively cheap railway transportation is by economical construction, maintenance and general working. Waste or extravagance in capital or current costs ultimately results in higher tariffs. Increased railway tariffs diminish traffic and retard industrial development.

Much also depends on the general efficiency of the service provided, and on the manner in which the tariffs are designed with relation to different classes of traffic. Increased

traffic decreases the expenditure per unit. Badly designed tariffs diminish the volume of traffic, which involves increasing tariffs on the remaining traffic, for the reason that a decrease in traffic increases the expenditure per unit. Operating expenses do not diminish in the same ratio as traffic, owing to the large proportion of fixed charges included in railway costs.

Conflict of Opinion on Advantages of State Versus Private Railways.—There is much room for diversity of opinion as to the relative advantages of state versus private railways. So much depends on the peculiar conditions of the country concerned. Prior to 1885, Italy alternated between state and private management. In 1885 she definitely changed from state to private management, and in 1905 reverted to state management. In 1844 the British Parliament passed an act dealing with the state purchase of the railways sanctioned subsequent to 1843, and in 1865 the British Royal Commission reported in favor of the continuance of private management. Japan, after experience of private and state railways, side by side, decided to nationalize the whole of her railways.

Experience in India.—The Indian Government, after elaborate research, has today found it difficult to arrive at a satisfactory solution of the problem. The Railway Board of India, in a memorandum summing up the main arguments put forward on the general question, says (in part):

> As regards efficiency, it is said that this necessarily varies, and good and bad examples of working can be quoted under both systems, but a general survey affords no ground for holding that a state system has the advantage. It is added as a definite disadvantage of a state system that its working is liable to be affected in many ways by political influence, and experience shows that the consequence may be very serious. * * *.
>
> Doubts are expressed further whether in the working of rates for the development of its country, state would be as efficient as private companies, and experience is said to show that state control invariably produces a rigidity in the rate system which interferes with the attainment of the maximum economic advantage to be derived from the interchange of commodities, and prevents the full development of trade which is secured by the freer and more elastic treatment of rates by independent railway administrations.
>
> In addition upholders of the existing system claim that it has positive advantages. They say that the present allocation of different parts of Indian system of railways to semi-independent administrations produces a healthy competition and spirit of emulation, which would be lost if all were brought under state management. They claim that the financial burden of maintaining and extending the whole railway system to India is clearly too great for the government to bear alone.
>
> A policy of state-management for all the railways in India would inevitably tend to centralization; in this respect again the government would be overburdened, and it would be well advised, according to this view, to be content, as at present, with a general control, and, for the direct management of railway affairs, to retain the services of the companies.

The railway system in India is a composite one; the majority of the railways are owned by the state, but all except three state lines are managed by companies who have a small share in the properties they administer. Other railways are privately owned, some of them having been built by government aid under subsidy or guarantee. Others again are owned by district boards and native states.

Statistical Comparison of State and Private Operation.—It is extremely difficult, if at all practicable, to secure reliable concrete comparisons of the actual results of working state versus private railways. Large profits are possible under wasteful management if favorable conditions exist, e. g., dense traffic and satisfactory grades and curves. On the other hand, small profits, or even no profits, may be earned by a highly efficient railway unfavorably situated with regard to traffic, grades and curves, and costs of labor and materials. No railway unit of expenditure or revenue gives a reliable comparison between one railway and another, as so much depends upon:

(a) Costs of fuel, material and labor;
(b) Physical character of country, which determines train loads;
(c) Density and nature of traffic;
(d) Average length of haul;
(e) Industrial and railway policy;
(f) Competition with alternative means of transportation; particularly water ways; and
(g) Different values of money in different countries.

The Main Disadvantages of State Control

The practical experience of state ownership in different countries demonstrates that it is attended with powerful disadvantages. As to how far the disappointing results have been due to the peculiar local conditions of the countries concerned, to what extent they were preventable, whether equally powerful evils in other directions would have occurred under private ownership, I am not prepared to say. The results plainly indicate that, unless adequate safeguards are devised, grave abuses and disadvantages attach to state ownership. . . .

Undue Political Influence on Staff Conditions, Tariffs and General Facilities.—Where a large body of men, such as a railway staff, is employed directly by the state, there is a danger of their enlisting the efforts of legislators to secure better wages, shorter hours, improved conditions, etc. . . . The enforcement on the management, by parliamentary influences, of changes in staff conditions, demoralizes the entire railway service, impairs discipline, prevents good relations between the staff and the management, destroys economical operation, and in every way is to be gravely deplored.

Employees Resort to Political Influences.—There is a tendency on state railways for individual employees who feel aggrieved to resort to political influence. The results are harmful alike to employees and management. Efficiency and economy are in the interest of the employees, as waste, extravagance, and inefficiency diminish railway profits, and this ultimately reacts on the staff. Economical and efficient operation soon disappears if the authority and discipline of the management are undermined by undue external influences.

Situation in Australia.—These evils were so pronounced in the early days of the Australian railways that the state found itself compelled to appoint railway commissioners with statutory powers, securing them as far as possible from the exercise of political influences. Conditions on the Australian railways are still unsatisfactory. The Commissioner of Railways for Western Australia in his 1910, 1912 and 1913 reports shows that as a result of undue political influence matters are drifting to an *impasse.* Labor is piling up unreasonable demands, which have been granted by the government directly to the labor societies without consultation with the commissioner. Traders and particular interests employ similar methods to secure unwarranted facilities. The net revenue of all the Australian railways decreased heavily before the war. Since the war there have been heavy deficits, notwithstanding increased rates.

Difficult to Resist Unreasonable Demands.—There is also a danger under state ownership of the management being forced to provide facilities to particular sections in such matters as train service, accommodations, etc., which are not warranted. Similarly, alterations in tariffs in favor of particular localities or interests are often clamored for, which are not in the general interest. Unless the management is vested with reasonable independence it is difficult to resist such demands. . . .

Over-Centralization and Rigid Uniformity on State Lines.—There is undoubtedly a tendency toward over-centralization and rigid uniformity on state railways, and also of excessive rigidity in matters of audit-supervision of expenditures, contracts and revenue. These elements result from the necessity for great scrupulousness on the part of a government to avoid the possibility of suspicion of partiality or abuse. My own view is that these restrictions are carried too far. Over-centralization destroys initiative and resource, and if carried to excess, tends to cripple a large organization.

There is nothing inherent in state organization to prevent adequate decentralization, but the tendency certainly is toward over-centralization.

General Conclusions

The wide conflict of practical evidence renders it extremely difficult to decide as to the relative advantages and disadvantages of state and private railways. On the whole, it would seem that the problem is one to be determined according to the geographical position and the industrial, economic, political and social conditions of the particular country concerned, rather than according to the merits claimed for either system in other countries.

The success or otherwise of state railways is influenced largely by the extent to which the management is freed from political influence. It is thus manifest that the problem is governed by many elements other than the purely economic.

After mature consideration of the problem in all its aspects, I am inclined to the view that railways should be laid out, constructed and owned by the state and that with regard to the working, they should either be leased to a private concern, subject to adequate control as to the general tariff policy, etc., as in Holland and India, or matters of policy should be so divorced from executive control that state management would be freed from interference, political or otherwise, and afforded the same facilities for efficient working as a private company.

Experience shows that politics do creep into all state managements—irrespective of the statutory or other safeguards applied, as in the case of Australia and Italy—and that the only managements immune from interference are the autocracies of Germany and Hungary.

A leading French economist, dealing with the Western Railway taken over by the French Government in 1909, says:

"They have increased enormously the office staff; doubled, indeed trebled, the number of employes; . . . an increase of effective force of 5,280 units; when the traffic does not warrant more than a quarter or a third at the most of that increase. . . . They have raised the larger part of the salaries, *but there is still only a dissatisfied personnel.*

"The democratic government, having a varying personnel, practicing favoritism, *favoring want of discipline* and habituated to prodigality and want of unanimity, is incapable of conducting with method, surety and economy, a complicated industrial task. We are having it fully demonstrated. . . . *The same men in the service of the state cannot be as valuable as in the service of independent companies, because they are subjected to many more hindrances, much more suspicion, much more red tape and are especially restrained in their initiative.*"

Doings of the United States Railroad Administration

Director General Hines Asks for an Additional Appropriation of $750,000,000

WASHINGTON, D. C.

THE "REVOLVING FUND" of the Railroad Administration needs an additional appropriation of $750,000,000, according to an estimate sent by Director General Hines to the secretary of the treasury on January 24 for submission to Congress. Of this amount, $381,806,904 is required to settle the accounts of the Railroad Administration for 1918, including the operating deficit estimated at $196,000,000, and the balance of $368,193,096 represents the portion of the capital expenditures for the year 1919 which it is estimated will have to be financed temporarily by the government, including $20,000,000 for the Boston & Maine reorganization and $12,840,000 for inland waterways.

The estimate was transmitted by the secretary of the treasury to the speaker of the House of Representatives with a statement that over $550,000,000 of the amount is to be returned to the government eventually. The $200,000,000 not to be returned represents the operating deficit of the railways for 1918, together with that of the inland waterways, amounting to $500,000, which are to be charged off as a loss to the government as a part of the cost of the war, thereby relieving the shippers of anxiety lest they should be called upon to meet it with higher rates.

The item of $491,000,000 for capital expenditures plus the $286,000,000 for equipment ordered last year makes a total of $777,000,000, which is less than $100,000,000 greater than the $689,000,000 "carry-over" for last year, but the latter item may be considerably reduced, as it is now the policy not to undertake this kind of work except after having secured the consent of the corporations, and whatever amount of this work is to be undertaken this year will be added to any new authorizations for 1919 to make what amounts to a new budget for 1919. The $491,000,000, Mr. Hines has explained, is made up of an estimate of $200,000,000 for new equipment, including possibly some passenger cars and special types of cars not ordered last year, such as stock, refrigerator, general service and caboose cars, for which designs have been prepared, and $291,000,000 for additions and betterments, although it is likely that more than these estimates will be expended for additions and betterments and less for equipment. Mr. Hines' estimate submitted to Congress gives a figure of $290,000,000 invested by the government in additions and betterments in 1918. This represents an estimate of the amount which the railroads will not have taken care of when a settlement between them and the administration is made as of December 31 of the $588,000,000 expended for capital improvements in 1918, and indicates that the companies will have paid for $278,000,000 of the total. Mr. Hines expects to explain the financial situation of the Railroad Administration more in detail when he appears before the Senate Committee on Monday and he may also appear before the appropriation committees.

The Director General's Estimate

Mr. Hines' letter to the secretary of the treasury is as follows:

I have the honor to submit herewith a supplementary estimate in the sum of $750,000,000, to be immediately available and to remain available until expended, and to be added to and considered a part of the "revolving fund" provided for in Section 6 of the act approved March 21, 1918.

The necessity for this appropriation grows out of the following facts:

When the Railroad Administration shall have settled its accounts for the year 1918, the result will be substantially as follows:

1. The Railroad Administration had cash on hand at the end of the calendar year 1918..... This represents approximately the working cash capital partly in the central treasury at Washington, but principally in the hands of the federal treasurers of the Railroad Administration throughout the country. This represents much less than one month's operating expenses, and approximately this amount is necessary to enable the Railroad Administration and the various railroads under its control to meet without delay their payrolls, vouchers and other cash requirements.	$247,100,000

2. The Railroad Administration had on hand as of December 31, 1918, approximately the following additional current assets:

Agents' and conductors' balances	$154,000,000	
Advances temporarily made to railroad corporations on open account for which in effect materials and supplies are held collateral	100,000,000	
Total	$254,000,000	
Less outstanding current liabilities	162,047,865	
Balance		91,952,135

This net balance of these current assets will become again available in cash at the end of federal control, but pending federal control is inevitably tied up as a part of the working cash capital of the Railroad Administration.

3. Loaned New York, New Haven & Hartford Railroad Company 51,475,000

This amount will be eventually paid with interest, but the greater part of it, and perhaps all of it, will not be paid until after the end of the calendar year 1919.

4. Invested in necessary additions and betterments actually made during the year 1918 over and above the amount which the companies can immediately repay out of their rental and out of the balances due them on open account for the calendar year 1918 290,918,283

This amount will eventually be paid with interest to the Railroad Administration. The rapidity with which it can be paid is dependent upon financial conditions and the ability of the railroad corporations to borrow this money in the open market without undue disturbance of financial conditions, and without undue interference with the financing of the government.

Total 681,445,418

It will be observed that while all this amount of cash is temporarily tied up in the government's conduct of the railroad business, it is expected that the entire amount will be eventually repaid, but temporarily it cannot be repaid as above indicated, and therefore provision has to be made for carrying it.

5. In addition, the Railroad Administration will have paid the operating loss for 1918, i. e., the difference between the standard return due the railroads and the net operating income derived by the government from railroad operations, this difference amounting to 196,000,000

This loss was due largely to the fact that increased rates were effective for only six months approximately, while increased expenses were effective to a very large extent for the entire twelve months, due partly to the unprecedented weather last winter (the railroads having shown an operating loss of over $100,000,000, for the first four months of 1918 as compared with 1917, although no increased wages were included in those months, and while the corporations themselves were still operating the railroads as agents of the director general) and partly to conducting business at whatever cost was necessary to meet the needs of war. This represents the only item in the entire expenditure for the calendar year 1918 (except a portion of the next succeeding item), which is a loss to the government, and ought frankly to be charged as part of the cost of the war, and should be regarded as an exceedingly low cost for the result accomplished.

6. In addition, the Railroad Administration has expended during the year 1918 in connection with inland waterways .. 4,361,486

Of this amount $500,000 represents operating deficit during the year 1918. It must be remembered that this operating deficit was incurred in the early and formative stages of governmental operation upon the inland waterways, and cannot be regarded as indicating in any way that similar losses are to be expected when the operation shall be fully developed. The balance, or $3,861,486, represents boats and other property acquired by the government for operation of inland waterways, and of course can and will continue to be so employed.

Grand total	$881,806,904
Amount of revolving fund	500,000,000
Amount to be provided to settle all accounts for 1918	$381,806,904

In order, therefore, to settle in full the accounts of the Railroad Administration for the calendar year 1918, it will be necessary to provide the additional sum of $381,806,904 which together with the revolving fund of $500,000,000 appropriated in the act of March 21, 1918, will meet the transactions of the Railroad Administration for the year 1918, all of which have been outlined above. It must of course be understood that the figures used are necessarily only approximate at this time, because the accounts of the year 1918 have not been completely stated and cannot be prior to March 1 at the earliest.

For the calendar year 1919, financial provision must be made for the following:

1. To finance expenditures contemplated on inland waterways	$12,840,000
2. To financing Boston & Maine reorganization	20,000,000
3. To financing equipment ordered in 1918 and to be delivered in 1919	286,000,000
4. To financing other necessary capital expenditures for additions and betterments, including equipment	491,000,000
Total	$809,840,000
Less portion of companies' rental which can be devoted to capital expenditures	150,000,000
Balance to be provided	$659,840,000

The last item above mentioned of $491,000,000 represents a forecast of capital expenditures which will need to be made during the calendar year 1919 including these which were authorized and not entered upon or not completed during the calendar year 1918. Under existing conditions it is the purpose generally speaking to avoid the making of new capital expenditures without the assent of the corporations, but with such a vast transportation system it is believed that the expenditure of $491,000,000 will be required during the year and will be substantially assented to by the corporations themselves.

A very large part of these expenditures must be provided for in the first few months of 1919, and we are compelled to allow for the situation that during the period prior to the next Liberty Loan campaign and during that campaign it would not be desirable or practicable for railroad corporations to do a large part of their own financing.

Under these circumstances I am of opinion that $750,000,000 is the minimum appropriation which will enable the Railroad Administration to carry as above explained the money that is necessarily tied up in the government's conduct of the railroad business and to provide for financing by the Railroad Administration of the portion of the necessary capital expenditures which it must be assumed it will be necessary for the government to carry temporarily for the protection of the general financial situation as well as for the protection of its own financing. Such appropriation will meet the requirement of $381,806,904 to settle the accounts for 1918 and in addition will provide $368,193,096 toward meeting the above mentioned capital expenditures for 1919.

This matter has been very carefully considered with my associates in the Railroad Administration and we are satisfied that at least this much provision ought to be made for temporary assistance for these important purposes. It must be emphasized again that the money so provided will eventually be returned to the government with interest.

It is highly important that adequate funds for these purposes should be provided so as to give the Railroad Administration reasonable margin for encouraging the making of such railroad improvements as may seem justifiable from the railroad standpoint, especially since such improvements will aid in stabilizing the general industrial situation.

Whether government control shall continue until the end of the 21 months' period or shall be terminated in the next few months, it is equally necessary that the appropriation above recommended be made. If the control continues for the 21 months' period, it is my belief and the belief of my associates in the Railroad Administration that we cannot count upon the railroad companies financing during the calendar year 1919, any greater portion of their capital expenditures than it is above assumed they will finance. On the other hand, if control should be terminated in the next few months, it will still be true that a very large part of the capital expenditures for 1919 will have been made, and besides, the possession of an adequate fund to facilitate the transfer back to private control and to give temporary aid in financing will be highly desirable. Of course I must deal with the matter exclusively upon the basis of the law as it now stands, and without reference to conditions which might be brought about in the event of a further extension of federal control.

The reason for the submission of the supplementary estimate at this time is that the accounts of the Railroad Administration are kept upon the basis of the calendar year, and therefore it was not practicable to make any reasonable estimate until after the end of the calendar year.

Co-operation with Corporate Officers Desired

T. C. Powell, director of the division of capital expenditures, has issued D. C. E. Circular No. 16, giving the following instructions to the regional directors:

There appears to be some apprehension in the minds of a few corporate officers of the railroad companies that certain proposed capital expenditures may not be justified by present conditions. As you are aware, it has been the policy of the director general to confer freely through the regional directors with the railroad companies with respect to expenditures involving a charge to capital account in order to secure, if possible, their consent to the work.

Supplement 1 to D. C. E. Circular 1, issued January 22, 1918, provides, in section 7, that copies of all D. C. E. Forms 3, 4, and 6 should be sent to the president of the railroad company, in order to comply with the terms of the standard contract between the director general and the railroad companies, and upon receipt of such notice that it was proposed to proceed with the work, an opportunity was afforded the railroad companies to express their approval or otherwise.

Supplement 1 to D. C. E. Circular 10, issued October 7, 1918, provides:

> "The federal manager (or general manager) and regional director should invite and carefully consider suggestions from, and should confer with officers of the company owning the property to be improved respecting any work contemplated in advance of or during the preparation of the budget, or at any time, but are to be governed by their own judgment as to the work to be recommended, definite notice to the company of the work actually to be undertaken being provided for in connection with D. C. E. Forms 3, 4, and 6. The suggestions and conference herein contemplated are not to comply with any legal requirement but to get the benefit of the judgment of the company officers and to provide additional opportunity for meeting the wishes of the company wherever reasonably practicable."

It is now the desire that this close co-operation with the officers of the railroad companies be carried to the point of securing the definite approval of the railroad companies with respect to any new work before such work is commenced, and that in submitting D. C. E. forms to this office each form shall bear notation to the effect that the work has the approval of the railroad company.

In all cases where the federal manager believes the work should be done and the railroad company withholds its approval, a full report should be promptly made of the objections or disagreements that cannot be overcome.

D. C. E. Circular No. 17 gives additional instructions. The federal managers are now engaged in preparing a statement of all work authorized or commenced prior to January 1, 1918, designated as the "Carry-over," which statement is to be prepared and distributed as outlined in D. C. E. Circular No. 14, and this statement should show in detail each job or project involving a charge to capital account in excess of $1,000.

A copy of this statement is to be sent to the president of the company for whose line the work is being done, and it is now the wish of the director general that the railroad companies be consulted and that their approval be obtained for each item of uncompleted work as contained in the "Carry-over." This, irrespective of the fact that the railroad companies may have already approved some items of the work or protested others.

In order to accomplish this the regional directors are asked to arrange for a conference with the corporate officers for the purpose of going over these "Carry-over" items before any further important obligation is entered into, so that unexpended balances in connection with work which is not approved by the railroad companies, will be reported in column 13 and an appropriate explanation made in column 15, "Remarks."

These instructions do not apply to equipment purchased by the United States Railroad Administration and allocated to the several roads, cost of which should be entered in column 14.

"Carry-overs" should bear the approval of the regional director, and when concurred in shall bear also the approval of the proper corporate officer of the railroad company.

Items of the "Carry-over" statement recommended by the regional director but not approved by the corporate officers shall be submitted promptly after forwarding the "Carry-over" for further consideration by the division and be considered as new items not yet approved for 1919, except that no item of work involving safety of operation shall be delayed.

State Commissions to Be Conciliated

Now that the war is over and it is feasible to give more detailed consideration to the rights, prerogatives and feelings of various interests affected by transportation policies, and less to the necessity of taking prompt action, the Railroad Administration hopes to be able to establish more harmonious relations with the state railroad commissions, which have been somewhat ignored during the past year, and many of which have resented it. Director General Hines on January 25 issued a statement on the subject which indicates that the appointment as director of the Division of Public Service of Max Thelen, formerly chairman of the California Railroad Commission and president of the National Association of Railway Commissioners, is a step in that direction. Mr. Hines said:

"Since I have become director general I have been giving careful consideration to the development of the policies of the Railroad Administration along lines adapted to peace conditions. One of these questions which I began to consider at once was the question of relationship with the various state commissions, fully believing, now that the nation's transportation functions are no longer primarily war functions, that it is of great importance to invoke to an increasing extent the aid of the state commission. C. A. Prouty, director of the Division of Public Service and Accounting, is in entire accord with this view. When it became necessary to comply with his request and relieve him of the public service part of his work Max Thelen was selected as director of the newly created Division of Public Service because he, too, was known to be a strong believer in this policy. Mr. Thelen expects to assume his duties February 1, and immediately thereafter, I hope, with his assistance, to be able to get a clear and helpful understanding with the state commissions on this highly important subject."

The circular announcing the creation of the Division of Public Service states that its "scope will primarily be to deal with the relationship between the public, including shippers, and the Railroad Administration, and the railroads under federal control."

Chicago Suburban Fares Increased

The Railroad Administration has announced that the 10 and 25-ride commutation tickets heretofore sold in the Chicago suburban service, will be withdrawn on February 1 and a 26-trip family ticket good for the purchaser or any member of his family, limited to six months, will be sold at the rate of 2 cents a mile. Unused rides of tickets of the old form purchased after this announcement has been made will not be honored after January 31, but will be redeemed. Any tickets sold at an earlier date will be honored throughout the month of February, after which the unused rides will be redeemed. The rates for monthly commutation tickets will not be changed. The reason officially assigned for the increase is that it is necessary for the protection of the Aurora, Elgin & Chicago and that the former rates were below the

present cost of service. This was outlined in an official statement as follows:

"Some time ago the Public Utilities Commission of Illinois gave the Aurora, Elgin & Chicago Railroad, an electric line not under federal control, authority to advance its commutation fares to the statutory maximum rate of 2 cents per mile. As this road competes with roads under federal control, it found itself unable to take advantage of this permission, as such action would merely result in turning its traffic over to its competitors, whose rates would continue to be lower than 2 cents per mile. By reason of the sharp increase in its operating costs, the electric road was in financial straits. It appealed to the War Finance Corporation and the Railroad Administration in Washington. An investigation ensued in which it developed that the multiple trip ticket rates charged by the steam roads were below the present cost of the service and were also much lower than those charged for like service elsewhere—the rates in New York City, for example, being substantially higher than those in Chicago. Following this investigation, the Railroad Administration authorized the Chicago roads under federal control to advance their fares as stated above."

Railroad Administration Takes New Building

The Railroad Administration, in order to obtain additional office space to relieve the crowded condition under which it has been working ever since its organization, has leased a new building at Eighteenth street and Pennsylvania avenue, Washington, across the street from the Interstate Commerce Building, in which its principal offices are located.

The administration now occupies space in four outside buildings. The offices of the new Division of Public Service will be located in the new building.

Consolidated Classification Committee Appointed

The Division of Traffic has appointed a consolidated classification committee consisting of R. C. Fyfe, chairman, Western Classification Committee, chairman; R. N. Collyer, chairman, Official Classification Committee, and J. E. Crosland, chairman, Southern Classification Committee. The headquarters of the committee will be at Mr. Fyfe's office in Chicago.

All requests for changes in or additions to the classifications should continue to be made either through the traffic officers of the railroads or direct to the chairmen of the classification committees, whe will make investigations as heretofore and submit their recommendations to the consolidated classification committee for docket and hearings.

Wage Increases Estimated at $810,000,000

Additions to the payroll of the railroads in 1918, largely as the result of wage increases ordered by the director general, are now estimated at approximately $642,000,000, or about 37 per cent. This, however, is the total increase in the payroll and is affected to some extent by the change in the number of employees. All of the increases, however, were not in effect for the full year and the total on a yearly basis is estimated at $810,000,000, not including the prospective large increase for the railroad train service employees.

Capital Expenditures to November 30

A total of $516,515,394 had been expended in connection with work chargeable to capital account to November 30, 1918, according to the monthly report of the Division of Capital Expenditures. This represents 40.4 per cent of the total authorization for the calendar year, which amounted to $1,278,814,998. Of the expenditures, $242,260,135 was for additions and betterments, $254,060,941 for equipment and $20,194,318 for extensions.

Boats for New York Canal Authorized

The Railroad Administration has authorized the construction of 20 steel power boats for the New York Barge canal. These will be combined power and cargo boats with a capacity of 500 tons.

A Dining Car with a Place in History

In this dining car on the morning of November 8, 1918, Marshal Foch received the German delegates and read to them the terms upon which he would grant an armistice to the beaten armies of the Kaiser. The car was at the railway station of Rethondes, 45 miles northeast of Paris, at the northern edge of the Forest of Compiegne. In this same car at 5 a. m., November 11, the armistice was signed. The photograph was taken a few hours later when the Marshal's train arrived at the railway station in the city of Compiegne. Photo copyright by Press Illustrating Service.

The Influence of Zinc Ties on Track Circuits

Signal Engineers on Various Railroads Relate Their Experience with This Problem

THE LAST CONVENTION of the Railway Signal Association developed an interesting discussion on the influence of the presence of ties treated with zinc chloride on the operation of track circuits. Attention was called to the tendency for the more extended use of zinc chloride at the present time owing to the decreased supply of creosote available. It was also pointed out that difficulty has arisen occasionally in the operation of signals through the fact that zinc-treated ties have a lower electrical resistance than untreated or creosoted ties.

The discussion was started by F. W. Bender, assistant signal engineer on the Central Railroad of New Jersey, who stated that for 16 years that road had operated a certain track section, 6,522 ft. long, for the operation of a block signal, using four cells of battery connected in multiple series. A derailment occurred recently on this track section which destroyed 2,580 ties. These were replaced with ties freshly treated with zinc chloride after which a relay could not be made to pick up with the usual number of cells. In order to operate it 16 cells in multiple-series were required. It was found that the leakage due to these ties increased the current flow at the battery end to 4.2 amperes in dry weather and that after a rain this reached a maximum of 9 amperes.

Ten of the zinc-treated ties were tested by placing them on insulators and it was found that their resistances were 2,200. 1,700, 401, 400, 388, 329, 326, 260, 220 and 125 ohms, respectively. The readings from which these resistances were calculated were made between two points 4 ft. 8½ in. apart. It was also found that the zinc-treated ties were generating currents of their own; a difference of potential of 20 millivolts being recorded between two points on the ties 4 ft. 8½ in. apart. Further tests showed that the track circuit section would have to be cut into 930-ft. lengths to insure satisfactory operation. Before the zinc-treated ties were installed in this particular section, the cost of the battery material averaged $3.75 a month, whereas the cost of battery material after the zinc-treated ties were installed varied between $75 and $100 a month.

J. A. Peabody, signal engineer of the Chicago & North Western said that many zinc-treated ties had been put in the track on that road years ago, and that little or no effect was noted during cold or wet weather, but that difficulty occurred on hot, dry days. After studying conditions for some time it was discovered that this effect had practically disappeared within one year's time and that if not over 12½ per cent of the ties were renewed in any one track circuit in one year, little trouble would be experienced in track circuit operation. Accordingly such a rule was put into effect.

With a view to gathering additional specific data on this subject letters were addressed to the signal engineers of practically all railroads in the United States using zinc chloride ties to any extent, asking for reports on their experiences in maintaining signals operated in tracks containing an appreciable number of ties treated with this preservative. The replies received served to confirm some of the points previously mentioned as well as to bring forth a number of new ones.

E. E. Worthing, signal engineer of the Southern Pacific, Louisiana lines, related an experience with track circuits on a stretch of 10 miles of second track in Texas laid with new zinc chloride ties, which confirms the view presented above—that a track section laid out of face with new ties of this kind will invariably cause trouble, but that this difficulty becomes less as time goes on, particularly after rains have washed away some of the preservatives near the surface of the timber. He is quoted in part below:

"We have two track circuits in service between mile posts 212 and 214, each approximately ½ mile long. This is new track and new Burnettized ties are used throughout, 18 to the rail with 9½-in. by 10-in. flat bottom tie plates, single spiked with 5/8-in. by 6-in. standard spikes. The ties had been in the track about six months when the track circuits were put in service, the ballast was clean and well clear of the rails. Shortly after the track circuits were put in we had a light, slow rain one night for about 10 hr. It was hot and clear the following morning but both track circuits failed and did not pick up until late that evening. I took a series of readings at the batteries and at the relays at noon. One battery was discharging 800 milli-amperes to the track. A series of readings at the relay gave 30 milli-amperes. The other track circuit was discharging 900 milli-amperes to the track; the reading at the relay was 40 milli-amperes. Four-ohm relays were used.

"We have recently had a much harder rain on these two track circuits, lasting for about the same number of hours throughout most of the night. Both track circuits held up and caused no trouble. I am inclined to think that the latter rain, which started off with a very heavy down-pour, washed off the zinc sulphate.

"Several years ago I made some tests of ties treated with a solution containing about 1.3 per cent chloride of zinc. After the ties had been soaked a test was made between sections of rail spiked in the usual manner and the ties were found to offer as low as 300 ohms resistance. All the trouble that I have had on this account has been on track where a great number of ties had been changed at one time."

In corroboration of this view the following statement is given by J. C. Mill, signal engineer of the Chicago, Milwaukee & St. Paul:

"There is no doubt that zinc chloride is a first class conductor of electricity and the use of ties so treated causes an excessive leakage of track currents, which can only be offset by shortening the track circuit limits. The extent of this shortening also depends upon other general track conditions, drainage, etc., therefore we have not established an arbitrary length of track circuit for our A. C. signaling. When our A. C. signaling was first installed some four years ago, we had circuits as long as three miles, which, of course, were immediately effected by the insertion of zinc treated ties. This also applied to shorter circuits. We have followed the policy of cutting our track circuits wherever trouble was experienced with the result that we have shortened and cut many track circuits since their first installation.

"From our experience and observation we are of the opinion that the effect of the zinc treated ties is very marked when ties are first installed, but that after the ties have been in service for a year or so the bad effect gradually wears off. This is probably due to the zinc chloride leaching out of the ties and being washed away by the weather."

That the experience is less severe in some quarters than in others, probably through the influence of relative humidity or precipitation, is indicated by the following statement by W. E. Boland, signal engineer of the Southern Pacific, Pacific system.

"We have been using zinc treated ties almost exclusively for some years and our experience is that they do not seri-

ously affect track circuit operation. Unquestionably they have some slight adverse effect but it is not sufficient to cause trouble when other track conditions are good.

"We have tried several times to determine just how much effect the Brunettized ties have on track circuits, but there are so many other conditions affecting the current value at the relay that it is practically impossible to make any such determination."

Further information with particular regard to measures taken by the signal engineers to overcome difficulties with the operation of signals is contained in the following statement by C. A. Dunham, signal engineer of the Great Northern, covering experiences on that line and also in territory south of the Ohio river.

"During 1902 and 1903 we installed signals (on the Illinois Central) on about 120 miles of new second main track south of the Ohio river. The old track had non-treated ties and the new track was laid on zinc-treated ties. All ties were white oak and both tracks were ballasted with crushed rock. The longest track circuits were 5,200 ft., with most of them about 4,000 to 4,500 ft. in length. We had no trouble on the old track with the non-treated ties, but we had trouble, and lots of it, on the new track. The remedy was to cut two track sections into three, which gave us track circuits which then approximated 3,000 ft. in length. After this had been done the service was satisfactory. During 1913, on 120 miles of track in North Dakota, the trouble was greater, largely because the ballast was gravel, and consequently the drainage was not so good as with the crushed rock. The remedy was again to cut the track sections down to about 3,000 ft. After this was done the service was greatly improved; in fact, we have been able to get along all right, and we shall, no doubt, continue to do so permanently.

"My advice would be to limit track circuits to not to exceed 3,000 ft., and preferably to about one-half mile, where the tracks are laid on zinc-treated ties. I think you will find that zinc-treated ties as ordinarily placed in the yearly renewals will not make any serious trouble, and even when all of the ties are finally treated you will not have trouble, provided you do not install long track circuits."

Railroad Hearings Before Senate Committee

Shippers Want Commission's Power of Rate Suspension Restored—Opposed to Government Operation

THE SENATE COMMITTEE on Interstate Commerce is still hearing various plans for the disposition of the railroads at the termination of the period of federal control, which indicate an overwhelming opposition to any extension of the present system beyond the time required to pass the remedial legislation regarded as necessary. The principal concern of the shippers who have been heard during the past week is the almost unlimited power over rate-making possessed by the director general, and they are making a strong effort to have Congress at least repeal Section 10 of the federal control law, which takes away from the Interstate Commerce Commission the power of suspension of rates initiated by the director general.

The committee at one time had decided to limit the number of witnesses to be heard, but apparently has changed this policy and intends to hold protracted hearings. When counsel for the railroads offered to file statements by Daniel Willard, president of the Baltimore & Ohio; Howard Elliott, chairman, Northern Pacific, and Samuel Rea, president, Pennsylvania, the committee decided it would prefer to have these executives testify at a later date. Representatives of the brotherhoods of train service employees were expected to follow Mr. Kruttschnitt, but they asked that their appearance be postponed. Walker D. Hines, director general of railroads, has arranged to appear before the committee on Monday, February 3. S. Davies Warfield, president of the National Association of Owners of Railroad Securities, had expected to introduce his plan on Thursday of this week, but his appearance was postponed. A number of additional shippers are to be heard and numerous members of state railroad commissions have been in Washington during the week prepared to testify.

Standard Equipment

Julius Kruttschnitt, chairman of the Southern Pacific, whose statement was published in last week's issue, testified again on January 23 and was questioned regarding the standardization of equipment. Replying to inquiries by Senator Kellogg, Mr. Kruttschnitt said he understood that each of the members of the committee appointed by Mr. McAdoo to prepare plans for standard engines had given his opinion that the idea was impracticable, but that the committee had gone ahead as directed and in reporting stated that they had done the best they could with the idea. At one time E. H. Harriman had proposed to standardize locomotives on the Union Pacific-Southern Pacific system, but the plan had been found impracticable. Had the corporate officers been left in charge, he said, they would not have undertaken standardization. Every locomotive builder had plans for the kinds of engines needed by nearly every company and locomotives could have been built from those plans much more expeditiously than from new ones of the standard designs.

Asked whether the Southern Pacific needed the 2,000 cars allotted to it by the Railroad Administration, Mr. Kruttschnitt said that the judgment of the officers of the road was that it did not, but it was told that in the opinion of the director of the division of operation it did need the cars, although in 1917 the Southern Pacific had handled a larger traffic than it handled in 1918 and with less cars and engines. Traffic was diverted from the Southern Pacific in 1918 by the Railroad Administration. Senator Gore recalled that Mr. Kruttschnitt had testified a year ago that he feared the disruption of his organization and asked what had been the experience.

Mr. Kruttschnitt said it was too early to state just what the effect had been, but that the Southern Pacific system under the Railroad Administration has been operated under the direction of three regional directors' organizations and that some of its lines had been turned over to the management of the Missouri, Kansas & Texas.

Clifford Thorne, representing the American Petroleum League, National Live Stock Shippers' League, National Council of Farmers' Elevator Association, Grain Belt Meat Producers' Association, and the Western Refiners' Association, took the stand on January 24 and brought out a number of facts which he said have created intense hostility against the Railroad Administration on the part of shippers, but against which open protest has been generally withheld until the war was over.

Clifford Thorne's Statement

Mr. Thorne's statement follows:

Government operation is so distasteful among the shippers of the United States, that, were a popular vote taken today, it would be defeated overwhelmingly.

If the members of Mr. McAdoo's staff had deliberately planned to double-cross the director general, and thereby to make government operation so unpopular that it would tend to kill any possible movement toward government ownership, they could not have adopted any more effective methods than those which actually have been adopted. I do not think for an instant that these railway officials have attempted to double-cross Mr. McAdoo, for they are honorable men. Unquestionably the emergency demands of the war were largely responsible for the existing situation.

There are some good things which Mr. McAdoo and his associates have accomplished, that must be saved out of the wreckage. To do this intelligently and efficiently will require several months of discussion, and the careful drafting of laws that will make some very important changes in our present statutes. During this interval the shipper wants protection against a business organization having powers that are autocratic and despotic in character.

In the midst of the intensely interesting and instructive discussion which you have listened to during previous days, about the forty or more reforms that have been proposed by the Interstate Commerce Commission and by the railway companies, I desire to challenge your attention if possible, to a single proposition: It is of paramount importance to the stability and progress of American industry that you shall immediately restore the full powers of our courts and commissions over the railroads of the United States.

This can be accomplished in a very simple manner, by striking out a few lines and inserting one or two sentences in section 10 of the railroad control law. Our proposition can be settled now. And unless this is done, the shippers of the country will suffer incalculable injury.

We believe that all other discussion might well be temporarily suspended for a few days so as to make possible the immediate consideration of this issue. Unless you decide to do this, nothing will be accomplished by the present Congress. For shippers, railway representatives, state commissioners, labor spokesmen, and reformers generally, can talk for the next six months continuously about the many propositions which have been suggested to you already by the railroad executives and by the Interstate Commerce Commission, to say nothing of those yet to come. You, yourselves, can reach no conclusion on this fundamental question inside of six months. The transportation problem forced upon us at this time will inevitably become one of the leading issues, if not the greatest before the American people during the coming 12 months. This subject will be discussed from every conceivable angle, on the platform, in the newspapers and magazines, and in the halls of Congress.

It is essential that this amendment shall be in effect during this interval, for, otherwise, during the next few months many sweeping, wholesale changes in rates, rules, and regulations now pending will be consummated; and these changes have no connection whatsoever with the war against the kaiser.

In the light of past experience, we earnestly beg of you to accept the word of no man as to the manner or the extent that these powers will be exercised in the future. When this law was before you, Congress was told that the power to control rates during the time of federal possession ought not to be exercised and would not be exercised except in such cases as might be necessary "in the public interest." You were told that, "It would be very unwise for the federal government to undertake through the director general of railroads—who merely represents the President in this control—to pass upon all the rates in the country, either *de novo,* or as questions may arise concerning them." And yet the fact remains that one of the first acts of the director general was to pass upon all the rates in the country, and at the present time the director general is passing upon rates from one end of the nation to the other, and making orders that will not affect to the slightest degree, the successful prosecution or the war against autocracy in Europe.

The temptation was too great for a staff composed almost wholly of railroad men.

The director general of railroads has exercised, and is now proposing to exercise arbitrary, despotic powers, in defiance of the common law and the statutory law of the country. The director general has decided, and is now proposing to decide, controverted issues between the shippers and the railroads involving millions of dollars, without any semblance of a hearing before a disinterested body. The director general is now considering wholesale disturbances of rate relationships upon which business has been built up and established during the past generation, without any hearing before a disinterested tribunal before the new rates become effective. All this has created uncertainty and confusion amongst the shippers of the country, which is intolerable.

We most earnestly petition the present Congress to amend section 10 of the railroad control law as follows: First, restore the suspension powers of the Interstate Commerce Commission, which will insure us a decision by a disinterested tribunal before any more sweeping revisions shall become effective; second, strike out the clause which attempts to make the orders of the President superior to state and federal law and the common law; and, third, insert a clause requiring the director general to pay final judgments against common carriers under his control, and charge the same to operating expenses, where so chargeable prior to government operation.

The present law which attempts to authorize the former chairman of the board of directors of the Atchison, Topeka & Santa Fe Railway Company, speaking for the President, to repeal statutes which have been solemnly enacted by Congress and by the several states, and to reverse the decisions of courts of last resort, is an abortion. This is supposed to be a republic, and not a monarchy.

While we feel very keenly the injustice of some of the propositions now pending, fairness to Mr. McAdoo and to the railroad men and to the shippers constituting his official family demands that we state in unqualified language that prompt relief on many matters has been granted in a most estimable and praiseworthy manner. This entitles them to very great credit, and I would be the last one to question their integrity, or their motives, or their ability. They are gentlemen of the very highest type.

Before beginning his prepared statement, Mr. Thorne replied to the statement that freight rates are lower in this country than in other countries, declaring that he had analyzed the rates on 50 commodities for representative hauls in Great Britain which had been selected by W. M. Acworth and that on four-fifths of them the rates were lower than the rates in Official Classification Territory in this country. He declared that the fact that per ton mile earnings are lower in this country is not a correct measure of the rates because in this country the terminal expense is spread over longer hauls.

As an illustration of his statement that the director general and his staff have attempted to disregard or repeal laws, he cited the circular issued regarding methods of settlement of claims for loss and damage in grain shipments. He said that a joint committee of railroad men and shippers is now preparing a set of recommended rules on this subject, but meanwhile millions of dollars of claims are tied up and the Railroad Administration will not recognize them unless the shipper can show negligence on the

part of the carrier. This, Mr. Thorne said, is contrary to law.

Senator Kellogg said he had received many complaints that the Railroad Administration has not paid many loss and damage claims and Senator Cummins said he had also received many complaints. Mr. Thorne said he had no reliable information, but that scores of shippers had written to him that they were unable to obtain settlements of their claims and that more unpaid claims were awaiting adjustment than ever before in the history of the railroads.

Mr. Thorne also cited the general order which provides that suits should not be brought against the railroads except in the jurisdiction in which the cause of action arose or where the plaintiff resided. This, Mr. Thorne said, repeals the Carmack amendment, which made it possible for shippers to bring suit for loss and damage against the originating carrier and that this is particularly true whenever the claimant does not reside within the jurisdiction of the court where the shipment originated. He also referred to the order that suits shall be brought against the director general. Senator Kellogg interrupted by reading a provision in the federal control law that actions at law or suits in equity may be brought by and against carriers as heretofore provided by law and that no defense shall be made thereto upon the ground that the carrier is an instrumentality or agency of the federal government.

"That part of the law has been repealed by the President," remarked Senator Cummins. "The President doesn't know he has repealed it, but Judge Payne has repealed it for him."

Mr. Thorne read instructions issued by General Counsel Payne regarding the settlement of claims on livestock, which provided that carriers should not pay claims for failure to get cattle to market on time provided they arrived on the day scheduled. Another instruction by Judge Payne to the regional directors said the carriers need not pay on account of verdicts "based on prejudice or passion." These and other orders and instructions Mr. Thorne cited as evidence that the director general has assumed authority to decide the rules of evidence and the jurisdiction of courts. He declared that whether or not legislative power can be delegated to the President, it is certain that an administrative tribunal cannot be given power to reverse laws. Other orders to which he objected were General Order No. 15 requiring industries to pay for and maintain industry tracks, but that they shall be owned by the carriers, and General Order No. 34 providing that perishable freight shall be sold whenever in the judgment of the agent it may be necessary to do so. Mr. Thorne declared that while the exercise of arbitrary powers might have been necessary during the war they are certainly not justified during the period while we are technically at war before peace is officially proclaimed.

Mr. Thorne said he had been told that the Interstate Commerce Commission records show the number of claims filed in November to have been 59 per cent greater than in November, 1917, and that the increase for 11 months was 54 per cent. He asked Commissioner Clark, who was present, whether this was correct and Mr. Clark said the increase is in the amount of claims paid.

Turning to the question of revision of rates, Mr. Thorne said that the so-called 25 per cent increase resulted in increases of from 100 to 275 per cent in some instances and practically effected an increase of several hundred per cent in some cases where the state classification was superseded by the interstate classification with a higher minimum weight and that between 2,000 and 3,000 complaints against General Order No. 28 had been filed with the Railroad Administration on the day it became effective. Regarding local traffic committees established by the Railroad Administration, Mr. Thorne said they had done admirable work in a great many cases in effecting readjustments of rates, but that frequently it was necessary to travel to three or four committees to secure an adjustment in a rate covering a wide territory. His principal objection, however, was that the same men that had been fighting the shippers for years in rate cases before the commissions were now the judges before whom they must appear to try rate cases, and that a majority of the committee members are railroad men. He said they will not always furnish dockets to shippers and that while theoretically there is an appeal to Washington, practically most of their decisions stand. He thought the committees ought to be continued, with perhaps an equal membership of shippers, but that the commission's power of suspension ought to be restored.

He said that while the Railroad Administration asked the advice of the Interstate Commerce Commission on the proposed standard scales of mileage class rates and the commission has recommended that consideration be postponed, there is nothing to prevent the Railroad Administration from putting it into effect at any time and the power should be taken away before something like that is done as the shippers want a hearing before the commission before any such scale goes into effect. The scale does not disturb the long distance interstate rates, he said, but interterritorially it revises, and in a large number of cases upward, all state scales in the South and West. It is a safe assumption, Mr. Thorne said, that there will be no more need of the emergency power to make large increases in rates and that the further changes in rates to be expected are those which are of far greater importance to the railroads than to the shippers. He thought the rate increase would considerably exceed $900,000,000 because the average in the case of freight rates greatly exceeds 25 per cent. As to the proposal of the railroads that the suspension period be reduced to 60 days, he said this would be no more fair than to require a reduction asked by the shippers to go into effect within 60 days if the case were not decided in that time.

Texas Shippers Urge Return of Roads

R. C. Fulbright, Houston, Texas, appearing on behalf of the Texas Association of Commerce, the Southwestern Industrial Traffic League and the Texas Industrial League, rather surprised the committee by presenting an entirely different line of argument from what has usually been made in Washington by the representatives of Texas. He not only urged the return of the railroads to their owners but advocated a unified system of railroad regulation and curtailing the powers of the state commissions to a point where they could not discriminate against interstate commerce. He advocated the plan of regional commissions as branch offices of the Interstate Commerce Commission and declared that the fight in Texas between state and federal authority was at an end. He presented copies of resolutions adopted by the Southwestern Industrial Traffic League similar to those passed by the other two organizations, except that the Texas Association of Commerce resolution contained no recommendation for the establishment of regional commissions. The resolutions declared that the shippers were opposed to the principle of government ownership and operation as being destructive of American initiative and against the interests of the American people and that they believe it is for the best interest of the people that the railways and express companies now operated by the federal government be returned to their owners and competitive conditions restored as soon as adequate reconstructive legislation can be accomplished. They advocated the enactment of such laws as will secure a unified system of control of railroad and express rates, fares, regulations and practices, both interstate and intrastate, under the authority of non-partisan commissions so far removed from political control as possible and the establishment of regional regulative bodies to be composed of non-partisan members familiar

with traffic and transportation conditions in the regions for which they act.

Disapproval was expressed of the plan for the appointment of a secretary of transportation, because, Mr. Fulbright said, of the desire for non-partisan and non-political regulation and because of the belief that such a plan would keep the railroads in politics. The idea was also opposed because it would give one man too great power and the shippers have not been pleased by the exercise of great power over rates by the director general. The resolutions also favor the regulation of the issuance of securities by state and national laws and legislation providing for assistance by the national treasury for railway improvements and extensions, such assistance to be granted by a regulative body. While favoring the maintenance of healthy competition, the resolutions declared that the interstate commission should have power to prevent competitive waste by eliminating circuitous routes and controlling service and to compel diversion of traffic and control routing to prevent or eliminate congestion at ports or terminals. Pooling of equipment and unification of terminals under federal control were also favored. The resolutions also advocated giving power to the Interstate Commerce Commission to make minimum rates, the adjudication of wage disputes before a non-partisan body, with legislation guaranteeing an uninterrupted functioning of transportation facilities, the preservation of the police powers of the several states and such other powers as are not inconsistent with the program outlined in the resolutions.

Finally, pending the accomplishment of a program of reconstructive legislation, it was earnestly recommended that Congress immediately restore to the Interstate Commerce Commission the power of suspension of rates promulgated by the Railroad Administration, and the Railroad Administration was called upon to take such steps as can be appropriately taken towards restoring the organizations of the various systems and lines of railway so that upon the return of the properties to the owners the lines can proceed at once with the performance of all of their functions as adequately and efficiently as under private competitive conditions and upon a fair earning basis.

If the commission's power is not restored, Mr. Fulbright declared, it would be in the power of the Railroad Administration to change every rate in the country without a hearing and Congress should settle this important question before taking up the more complicated problems. He thought a definite date should be fixed for the return of the roads. He said he was not attempting to criticise all of the acts of the Railroad Administration because it had done many good things, but he thought it had taken advantage of its power to try to put into effect without hearing many advances in rates formerly denied by the commissions, and such hearings as were held by the various rate committees, he said, were one-sided. It is true, he said, that government operation has not had a fair test due to the war conditions, but certainly the shipping public has ascertained that it does not desire either government ownership or government operation. The incentive to perform many important services for the shipping public, such as the tracing of freight, the assistance given in furnishing rate quotations, the eagerness on the part of the carrier to make a good showing in its transportation service and the recognition of such economic necessities as transit privileges, are almost, if not wholly, removed when competitive conditions disappear. Furthermore, he thought, railway competition tends to preserve commercial competition more equally and thereby assures the more uniform development of the country. In this connection, he gave it as his opinion that the morale of the men having responsibilities in the railroad organization has been at the lowest ebb during the past year that he has ever known.

He did not think the state commissions should disappear, because there should be a certain amount of regulation conducted by a body which is close at hand to which the public can go and get prompt action. If the regulatory power is centralized at Washington it becomes encumbered with such a tremendous volume of questions and cases that it is impossible to give prompt action. If the unified system could be worked out by co-ordination of the state and interstate commissions it would be preferable, but he failed to see how this can be effectively accomplished without some changes in the basic law. The principle which was decided in the Shreveport case, he said, is now generally recognized by the shipping public in his territory as a just principle. The authority of the state commissions can be preserved to do all things they are now authorized to do so long as they do not constitute a discrimination or burden against interstate commerce. He thought the time of fighting between state and federal rate-making powers has passed and that the state commissions are almost without exception ready to co-operate with and co-ordinate their activities with the federal body. The commerce act should be amended to clearly authorize the Interstate Commerce Commission to hold joint sessions with and to co-operate with the state commissions as fully as in its judgment is right and proper, and it is far more important that such a plan should be tested than to experiment with government operation for the next few years. He was in accord with the suggestion that some of the administrative functions of the Interstate Commerce Commission be turned over to some other body.

The shippers feel, Mr. Fulbright said, that the general increase of 25 per cent in rates has come to stay, with proper readjustments, at least for several years, and they also believe that the general level of wages brought about by the increases of the past year should be maintained while the cost of living is so high and only adjusted through such boards as may be constituted to handle such questions. He thought that a large part of the sentiment among employees in favor of a continuation of federal control is due primarily to the fear that the return of the railroads to private control would mean the sudden taking away of the increase in wages. He did not think that was the intention of the railways.

Plan for Financing Weak Railroads

E. J. Rich, formerly general counsel for the Boston & Maine, appearing for the Associated Industries of Massachusetts, presented a plan designed to establish credit for the weak roads in some other way than through increase in rates, in part, as follows:

If a weak railroad desires to raise money for improvements it should apply to the government for a guarantee of the principal and interest of the loans which it seeks to float. This would enable it to raise money perhaps on a 4½ per cent basis. In consideration of this guarantee there should be appointed by the President upon the board of directors two public directors, who should be ex officio members of all important committees. They should have no greater voting power than the other directors, *except* that all appropriations for improvements, the financing of which called for government guarantee, should be approved by them.

Under such a system, he said, little loss would fall upon the government. The railroad which has been earning only perhaps enough to pay its fixed charges and operating expenses would have no credit and could raise no money, but nevertheless would earn enough money to pay the interest charges on the new money raised. It could so improve its facilities as perhaps to reduce its operating charges and thus increase its financial solvency, with the result perhaps that eventually it might be able to finance itself without government guarantee.

Nevertheless, there might be loss, and the general treasury of the government ought not to be called upon to make up the loss. The plan would therefore provide that any railroad might earn, under an adjustment of rates permitted by

the Interstate Commerce Commission, and retain for its shareholders or put into the property, say, 9 per cent of the capital stock; that any surplus above this amount should be divided perhaps equally with the government. The railroads whose financial condition is such that they can readily raise money ought to be compelled to do so without government guarantee.

The Interstate Commerce Commission should receive a mandate from Congress to permit the establishment of a basis of rates which would prevent loss by the government on the interest charges. This should be the minimum basis, and to the extent of establishing a minimum basis the Interstate Commerce Commission should have as full powers as it now has in establishing a maximum basis.

Bonds guaranteed by the government would probably run for a long term of years and could easily be renewed indefinitely so long as the interest is paid. Therefore, no burden would eventually fall upon the government on account of its guarantee of principal. If for any reason it might be called upon to meet this guarantee on the principal of short term securities the fund accumulated from surplus earnings would undoubtedly be sufficient to take care of such payments.

The Interstate Commerce Commission, Mr. Rich said, has been very much criticised in ceratin quarters, and perhaps justly so. It has not always been alive to the nature of the transportation problem, which, after all, is a problem of adequate service. But it has established itself in the confidence of the public. Neither the integrity of the commission nor of a single member since its organization in 1887 has ever been impugned in the slightest degree; there never has been a charge made that it has been influenced by partisan political considerations. These are tremendous assets for any public body to have, and it would be a misfortune if the country were deprived of the services of a tribunal whose traditions for integrity and freedom from politics are so high.

The Interstate Commerce Commission, therefore, should be the supreme regulatory body. The burdens of regulation, however, are so great that they cannot be borne by the nine members of the commission. Many matters of great moment are necessarily entrusted to subordinates of limited experience and ability. Furthermore, the commission should be brought nearer to the people in their localities. Therefore, regional commissions, whose members should be appointed by the President, should exercise large powers and should have practically final jurisdiction in purely local matters, with an appeal to the commission in matters whose influence extend beyond the region, and in other matters of large moment.

Additional Data From Mr. McAdoo

Mr. McAdoo has filed with the committee some additional statements asked of him at the time he testified. One of these compares the earnings and expenses of the railroads for the four months, July to October, after the increased rates were made effective, with the corresponding period of 1917, excluding back pay and including the expenses of the Railroad Administration. The amount of back pay in these four months was $116,000,000 and the expenses of the Railroad Administration, which are not included in the returns of the railroads to the Interstate Commerce Commission, amounted to $1,939,220 for the four months. With these adjustments the operating revenues show an increase of $493,388,566, the expenses, an increase of $326,851,321 and the net operating income an increase of $174,361,696. The operating ratio was 67.52, as compared with 67.94 in the corresponding period of 1917.

Another statement showed that the back pay charged to the June account was $133,043,201 and that $116,272,076 additional was charged in the period July to October. The total increase caused by General Order No. 27 and Supplement No. 4, both of which were retroactive to January 1, is given as $230,731,277 for the months January to May, inclusive, and $18,584,000 back pay on Supplement No. 4 for the month of June is included in the $116,000,000 back pay charged in the period July to October.

Mr. McAdoo also submitted a statement of the number of officers and employees of the Railroad Administration with the payroll for December, as follows:

Central Administration

Number of officers and employees at Washington	1,193
Number of officers and employees outside of Washington (including 106 central administration traveling representatives, supervisors and inspectors)	227
Total officers and employees	1,420
Total pay roll for December, 1918	$280,600

Regional Administration.

Number of officers and employees	1,079
Total pay roll for December, 1918	$252,500

Note.—All figures are based on pay roll for second half of December, 1918.

Central Administration.

(Officers and employees by divisions, December, 1918.)

	Officers	Employees
Division directors	7	...
Director General's Office	2	173
Assistant Director General's Office	3	20
Division—		
Finance and Purchases	6	88
Operation	31	526
Public Service and Accounting	5	162
Law	9	61
Traffic	18	124
Capital Expenditures	2	41
Labor	3	52
Inland Waterways	1	11
Actuary	2	28
Board of railroad wages and working conditions	6	39

Bill to Prevent Early Return of Roads

Senator Cummins on January 27 introduced in the Senate a resolution to prevent the President from relinquishing control of the railroads to their owners before the expiration of the 21 months period provided by the federal control law unless Congress otherwise directs. The purpose is to compel the government to retain its present control until time has been afforded for the enactment of legislation to improve the system of regulation and to prevent the disastrous consequences which many believe would ensue if the railroads were returned suddenly, with a high scale of wages and other expenses. It is not considered, however, that the passage of such a resolution could affect the situation materially if the President is disposed to relinquish the railroads because he could issue a proclamation setting a future date for the termination of federal control before the resolution could be passed or he could wait until it is passed and veto it.

In discussing the bill in the Senate, Senator Cummins said that as Mr. Hines has stated that his policies will be those of Mr. McAdoo, it may be assumed that it is the purpose of the director general to return the roads at the end or very soon after the end of the present session of Congress unless Congress extends the period for five years. It was his opinion that Congress would not extend the period, but that all the members of the Senate committee believe they can work out a permanent policy for the readjustment or reorganization of the relationship between the railroads and the government within a few months and that within a year Congress will be able to agree upon some enduring, general, permanent system for the control of the railways. He thought there should be a special session of Congress, but even if there is not, if the commerce committees of the House and Senate are permitted to continue their work during the interim and are ready to report at the next regular session Congress could begin the year with all the differences composed.

"If we do not pass this bill," he said, "or something of the nature, and the President is guided by the advice of his director general and returns these properties in their present condition and under existing circumstances, the United States will see a cataclysm in finance as well as in railroad operations such as it has never witnessed before."

Chapters from Railroad Administration Report

Activities of Divisions of Public Service, Accounting and Law and Bureau for Complaints and Suggestions

ADDITIONAL CHAPTERS from Mr. McAdoo's report to the President for the year 1918, which is being issued in installments, have been given out by the Railroad Administration, covering the activities of the Division of Public Service and Accounting, the Division of Law, and the Bureau for Suggestions and Complaints.

Public Service and Accounting

The activities of the Division of Public Service and Accounting, conducted under the supervision of C. A. Prouty, director of valuation of the Interstate Commerce Commission, include those which relate to the service rendered the public and the accounts of the director-general and of the individual railroads. The report says that as railroads must necessarily be operated by railroad men, who bring to their work the views which they had formed in the past, and as railroad operations under government control are relieved to a considerable extent from regulatory restraints, Mr. McAdoo felt that there should be in the federal administration itself some department which should stand charged with the public interest. The report then outlines the work and organization of the various traffic committees, composed of railroad men and shippers, which have been formed to consider rate questions, either locally or by reference in important cases to Washington. Every authority for a change in rates issues from the Division of Traffic in Washington and no change can be made until that change has been submitted to the Division of Public Service. If not approved, it is suspended until it can be discussed and, if necessary, taken to the director general for final determination. The report says that in the past thousands of rate changes have been made each month which were worse than unnecessary, because they produced confusion, and when no rate is changed except for some substantial reason the number of such changes will be enormously reduced and it will become possible to publish tariffs in a much more satisfactory way than at present.

The report also explains the necessity for impairment of service during the time of war, but states that this condition has been changed by the cessation of hostilities and that every effort will be made to ascertain what service the public properly requires and to render that service when possible.

An attempt is being made to work out a plan of co-operation between the state commissions and the Railroad Administration to give information as to defects in service, accompanied by suggestions as to how they should be corrected.

The accounting section of the report states that if all railroads were owned and operated by a single corporation or by the government a large part of the accounting work would disappear. Under the Railroad Administration some of these costs have been eliminated and others to a very great extent curtailed. Car hire has been eliminated. The accounting for car repairs has been much simplified. Joint facility expenses have been distributed upon an arbitrary basis and many millions of dollars have been saved, but the saving has been nothing like what it might be under permanent unified operation. The contracts with the carriers also require an accounting as to the expenditures in the upkeep of the properties because of the requirement that they shall be returned in the same condition as when received. A very considerable amount of accounting work is involved in comparing the expenditures and the prices with those of the test period. A considerable amount of expense has been involved by the opening of a new set of books at the beginning of federal control and by the accounting necessary in connection with the orders for equipment which contain a proviso that if anything can be saved as compared with the maximum price fixed in the contracts either on materials, labor or overhead, the government shall have the benefit of the whole or a part of the saving and in the case of cars, the material is paid for by the government. A large amount of extra accounting has been made necessary in order to determine revenue from proposed rates and the effect upon revenues of various changes which will be unnecessary when conditions become stabilized. The report also says that the greatly increased wages which accountants are to-day receiving, as well as the inferior quality and reduced efficiency of some of those who are employed, has increased the cost, but that were the railroads of the country actually unified under one control there would be an enormous saving in accounting expenses.

Law

The Division of Law, with John Barton Payne as general counsel, has had general supervision over all legal activities of railroads under federal control, and over the preparation of contracts and other work relating to claims and property protection. A list is given of 30 railroads with which contracts have been executed, many of them including a considerable number of subsidiaries, parties to the main contract. The report also gives the classification of the 2,161 short line railroads relinquished from federal control on June 29, as follows:

637 plant facilities.

726 circular roads (roads which do not file reports with Interstate Commerce Commission, but submit information in circular form.)

264 electric lines.

15 switching and terminal roads.

519 class I, II, and III roads.

Since that date 15 additional roads have been relinquished by agreement. Total, 2,176 roads relinquished.

Sixty-six roads have since been restored to federal control, leaving 2,110 relinquished. (Jan. 2, 1919.)

At the time of relinquishment it was announced that a policy of co-operation with relinquished roads would be maintained, assuring fair divisions of joint rates, adequate car supply, and the preservation of routings so far as consistent with the national needs. This policy finally, after hearings afforded the interested lines, ripened into a co-operative contract, which was announced on October 30.

Applications for this contract have been received from 90 of the relinquished roads, although a large number of the lines are satisfied with the policy voluntarily put into effect at the time of relinquishment. Seven co-operative contracts have been executed. Meanwhile joint rates and divisions are being adjusted on a fair and equitable basis with all the short lines preparatory to the execution of co-operative contracts if desired.

A committee on compensation and contracts, consisting of two representatives of the Division of Law, one of the Division of Operation, and one of the Division of Public Service and Accounting, was appointed on July 15 to hear petitions of relinquished short lines to be restored to federal control on a co-operative or compensation basis and

to hear petitions of federal controlled roads for special compensation.

There have been petitions from 79 relinquished short lines and reports on 74 rendered.

The following is an analysis:

Co-operative contract recommended	30
Standard return recommended	26
Special basis recommended	6
No contract recommended	6
Contract without compensation recommended	3
Contract on basis scrap value recommended	1
Electric lines that did not come under the proclamation	2
Unreported	5

With the exception of nine cases, all of the committee's recommendations were approved, five contracts having been executed, one on basis of standard return, three co-operative, and one on special basis. Of the nine recommendations disapproved, eight were for contracts on basis of standard return in lieu of which the co-operative contract was suggested for five, three no contract, and one road for which the committee recommended a contract whereby the government would operate the road without payment of compensation, payment of "fixed charges" was suggested. Contracts are being prepared for all of these roads except three, which have declined on basis tendered.

Petitions for special compensation have been presented by 38 roads. Recommendations have been made in 17 cases, 10 for complete rejection and 7 for partial allowances. In 3 of the rejected cases the roads desire a rehearing which will be granted. One road has withdrawn its claim, one is a matter for the Interstate Commerce Commission to dispose of, leaving 19 to be reported on as soon as heard and necessary information is received. In addition to the above, 25 new claims have been filed.

The Division of Law has also passed upon all legal matters connected with advances to railroad companies on account of the standard return or by way of loan.

The policy has been to make full use of the existing organizations, avoiding unnecessary disruption—and at the same time reduce the amount of legal expense to a minimum consistent with efficiency of service. The general plan adopted was—

(*a*) To separate, and assign to the appropriate accounts, expenses relating to corporate matters—and therefore chargable to the corporations—and those incident to the ordinary operation of the properties.

(*b*) Appoint, as to each road, a head of the federal legal staff, with the title of general solicitor, who, under the general counsel at Washington, acts as adviser to the federal manager and is charged with supervision of the legal department.

(*c*) Dispense with the services of lawyers not actually engaged in the performance of necessary legal work.

(*d*) Eliminate duplication of employment, in view of unity of operation, and readjust salaries to conform with anticipated changes in the amount of litigation under federal control.

The separation of corporate and operating expenses has been accomplished, usually, by the assignment to the corporations of one or more members of the general office force, New York counsel, and others employed primarily in corporate matters.

Where several roads are grouped under the same federal manager, the practice has been to appoint one general solicitor, with jurisdiction co-extensive with that of the federal manager; and in determining appointments and salaries the recommendations of managers and regional directors have first been obtained and considered.

The eliminations include legislative counsel, special agents, counsel employed at Washington in departmental matters, statutory agents of individual roads for service of notices of the commerce commission, counsel located at points remote from the line of road, etc.—as to all of whom it was felt that their employment is unnecessary under government operation.

With unity of operation, it has been possible in some cases to consolidate the legal work, and thus accomplish more effective results at a lower cost. Reductions in salaries were confined largely to trial counsel who engage in general practice, the belief being that the restrictions of the federal control act and orders of the director general relating to suits would cause some diminution of actual litigation. The "fee basis" of employment has been discouraged and definite annual salaries substituted as a rule.

The total expenditures on account of salaries in the legal departments of the various carriers approximated $7,150,000 when federal control was assumed. Present expenditures approximate $4,935,000, a saving of approximately $2,215,000.

Under date of March 26, 1918, a section for the protection of railroad property and property of shippers in transit was established in the Division of Law to enforce rigorously the federal law against theft and to take all necessary measures in co-operation with carriers to prevent loss from this cause.

A Freight Car Claim Section was established August 1, 1918, with jurisdiction over all matters pertaining to loss and damage freight claims and their prevention, for the purpose of having administrative jurisdiction over all such matters on railroads under federal control, to study the causes and to take such remedial steps as appeared necessary to prevent such claims and conserve the food products and materials heretofore lost and wasted by reason of improper packing and loading and negligence in the handling of the various commodities.

Prior to this there had been no uniformity in the jurisdiction over the claims departments, and because of the varying practices governing them it was decided to place the jurisdiction under the legal department; therefore, coincident with the establishment of the Freight Claim Section, the loss and damage freight claims and the prevention of causes of such claims were placed in charge of freight claim agents reporting to the general solicitors of the respective railroads.

Another source of large expenditures, running into the millions of dollars, are personal injury, right of way, stock and fire claims. Therefore it was deemed advisable to create in the Division of Law a section co-ordinating these three branches of the railroad service.

Effective September 1, 1918, there was created a section entitled "Claims and Property Protection Section," to have jurisdiction over freight claims and prevention, property protection, and personal injury claims. It is not intended this section should be more than an administrative section to study causes, establish policies and co-ordinate with the forces of the carriers as existing when the roads were taken under control. Later the secret service was transferred to the Division of Operation.

The following statistics reflect the activities, as far as reported to the Washington office, of the police agencies of the carriers:

PERIOD FROM APRIL 1 TO NOVEMBER 30, 1918

Arrests for thefts	10,530
Convicted	6,069
Pending	2,075
Employees arrested	3,241
Value goods recovered	$667,578.54
Sentences one year or over	1,095
Fines imposed	$150,509.63

Under corporate control each individual railroad had its own method of investigating and disposing of loss and damage freight claims. Therefore, in order to bring about uniformity and simplicity in the presentation, investigation, and disposition of loss and damage claims, General Order No. 41, "Regulations Governing Disposition of Interroad Freight Claims for Loss and Damage," was issued.

Consideration having been given to the vast amount of

freight refused and unclaimed by the consignee after its arrival at the billed destination, it was deemed advisable, for the purpose of clearing the congestion and keeping the channels of commerce open, also of conserving food products and materials by preventing waste and deterioration, to provide a uniform method of disposing of this class of freight promptly.

The method of claim handling having been simplified and General Order No. 34-A issued to clear the railroads of congestion due to the freight remaining on hand, refused or unclaimed, attention was next given to the subject of claim prevention. This, perhaps, is now the most important duty of the Freight Claim Section. The enormous amount of money (running well into millions) expended annually for loss and damage freight, which in the end has no economic value, is a situation that must be corrected by taking such remedial steps as are necessary toward the prevention as well as the settlement of claims. Therefore a careful study has been given to a method of prevention, and a nation-wide campaign is now being arranged in an effort to prevent this waste.

Promptly after the establishment of this section, numerous complaints began to arrive regarding the nonsettlement of loss and damage claims. Therefore attention was drawn to the provisions of General Order No. 41, which eliminated unnecessary interline investigation, bringing forward each month claims of greater age than four months. An inventory was made of all such claims with a view to giving them special attention.

One of the most important classes of claims to be met with in the claim departments is that of loss and damage to fruits and vegetables. There is a large amount of money expended annually in loss and damage claims on this commodity, besides the loss of millions of dollars' worth of food products. Therefore it is hoped to establish uniform practices in shipping and protecting these commodities and simplifying the adjustment of damages where negligence exists.

Because of conditions existing under corporate control, it was customary at most of the interchange points for each line to have inspectors for the examination of freight, making an inspection and record as to ventilation, refrigeration, etc., and many commodities were inspected as to loading, bracing, stability of packages, and general condition of the freight. This necessitated the employing of a number of men doing the same work. In order to bring about co-ordination of the various inspections by the different railroads at such interchange points, such duplication of inspections has been discontinued.

The greatest amount paid out by railroads for losses and damages growing out of any one individual class of claims was that of grain, and there being no uniformity of practices in the preparing of cars, recording of loss, or disposition of claims for loss and damage, General Order No. 57 was issued, setting forth "Rules governing the inspection, selection, and co-operating or rejection of cars for bulk grain loading, the recording of the loss of grain from car by leakage (if any) during transit, and the disposition of claims for loss and damage of grain." Because of the varying practices in the loading, shipping, recording leakage, if any, and the disposition of claims, there have been numerous controversies on this class of claims, and this order should have the effect of establishing uniform practices as to the coopering and loading of cars, as well as the disposition of claims, and should result in a substantial saving to the shipping public as well as the railroads.

In the payment of personal-injury claims the amounts paid have been influenced in the past to a large extent by the decisions of the courts and juries in the respective states where the injury occurs, and therefore the steps toward prevention must be taken by the individual railroads in preventing the accidents or the causes of such injury in so far as possible.

In order to bring about uniform practices and economy in this regard a committee, known as the Executive Committee of the General Claim Agents' Association, has been appointed for the purpose of studying the general situation throughout the country and to make recommendations to unify the practices on the various railroads.

This division is served with all "notices and processes" issued by the commission which may affect the director general and any of the roads under federal control. The information thus received is at once communicated to the general solicitors of the roads immediately involved.

As of July 1, there were on the docket of the commission approximately 1,000 formal complaints against carriers operating roads now under federal control, of which 481 had theretofore been heard and submitted but could not be decided because of the change of status. There were also pending 29 general investigations instituted by the commission.

The commission amended its rules of practice so as to allow rate complaints that had been filed prior to the initiation of rates in June to be supplemented, instead of compelling the parties to file original complaints. Two hundred and sixty-seven supplemental complaints have been filed and answered, and the new complaints are being answered as filed. The data for answer is ordinarily obtained from the general freight traffic committees appointed by the Division of Traffic.

Since July 1 counsel for the Railroad Administration have participated in the hearing of 180 cases before examiners in various parts of the country, and in the oral argument of 40 cases before the commission. The commission has disposed of 130 complaints, but none of its decisions have in any material way affected the initiated rates.

There are upon the commission's docket at this time about 1,000 complaints, old and new, of which about 350 have been submitted for decision. Many of these cases cover large demands for reparation growing out of transactions that occurred prior to federal control. Many others are important in their relation to supposed discriminations and to regulations and practices. Through the committees appointed by the Division of Traffic, counsel endeavored to bring about a settlement by conference of the controversies and differences which have led to the formal complaints, and a number of cases have been disposed of in this way.

Of the 29 general investigations above mentioned, 11 have been disposed of by the commission without any detriment whatever to the Railroad Administration, and some of the others are now under hearing, the director of the Division of Traffic having informed the commission that he will, by presenting the pertinent facts, assist it in reaching conclusions, and that he will consider any recommendations it may make.

Suggestions and Complaints

In June Theodore H. Price was appointed actuary to the Railroad Administration, serving without salary. His duties, in addition to the analysis and study of the statistical records and the preparation of reports thereon, have included the organization and conduct of the Bureau for Suggestions and Complaints established on September 3, under the immediate direction of Ballard Dunn, assistant actuary.

Up to December 24 this bureau had been in operation some 16 weeks, during which time it had received in all 10,424 "initiatory letters" containing 11,666 suggestions, complaints, and commendations. As each of these letters has been answered, and as a thorough investigation of the things complained of and a thorough consideration of the suggestions made has involved much additional correspondence, a total of over 40,000 letters has been handled by the bureau. The aggregate of the salaries paid to the force of correspondents and employees conducting this work averages less than 4 cents a letter.

A careful classification of all the "initiatory letters" has been kept, and those commending employees for courtesy and

loyalty exceed the complaints of discourtesy by nearly two to one.

In all some 1,328 communications have been received as against only 714 letters complaining of individual discourtesy or incompetence. This is a record, the report says, of which the army of railroad men as well as the women who have recently been mustered into the service may well be proud. The commendations received have in every case been noted upon the records of the employees mentioned and will be given due consideration at the appropriate time. In addition to the 1,328 letters commending individual employees that have been received, 128 communications commending the railway service rendered by particular lines have been addressed to the bureau.

The other letters received by the Bureau for Suggestions and Complaints relate chiefly to what may be described as the organic defects of the service which were correctible under existing conditions are being remedied as rapidly as possible.

The classification that has been made of all the initiatory letters received and the number falling into each class follows:

CLASSIFICATION OF INITIATORY COMMUNICATIONS RECEIVED BY BUREAU FOR SUGGESTIONS AND COMPLAINTS FROM SEPTEMBER 3 TO DECEMBER 24, 1918 (INCLUSIVE)

THINGS COMPLAINED OF AND SUBJECTS DISCUSSED

Train service	417	Express	60
Pullman service	141	Passenger	36
Diner service	329	Baggage	87
Treatment of negroes	137	Damage to property	195
Boat and ferry service	6	Claims, Pullman	34
Sanitary conditions	98	Ticket arrangements:	
Freight service	92	Railroad	287
Car supply	62	Pullman	103
Cash payment of freight charges	16	Parlor car	4
Freight classification	23	Baggage	44
Embargoes	34	Refund	279
Waybills	18	Congestion at ticket offices	52
Express service	72	Overcharge:	
Baggage service	23	For tickets	217
Delays to freight	350	For freight	49
Delays to express	76	For express	8
Delays to baggage	91	For baggage	55
Delays to live stock	41	On dining cars	10
Ignorance of rules	115	Bills of lading	39
Clerical mistakes	20	Demurrage	28
Freight rate discrimination	99	Protest against store-door delivery	1
Unfair passenger rates	45	Commendation of service	128
Unfair baggage rates	6	Newspaper criticism	2
Unfair Pullman rates	10	Commendations for courtesy and loyalty	1,328
Special rates	79	Discourtesy and incompetence	714
Criticism of operation	1,092	Dishonesty of employees	161
Wages, hours, etc	931	Time-tables, folders and guides	57
Safety	74	Economy suggestions	140
Garnishment	63	Tipping	8
Boat lines, operation and schedules	6	Inventions	19
Insufficient help	2	Passes for employees	101
Train schedules	644	Abuse of official authority	47
Station facilities and service	320	Discharge of employees	80
Station mail handling	6	Reinstatement of employees	16
Consolidation of stations	73	Refusal to honor United States transportation	9
Consolidation of offices	14	United States soldiers	15
Consolidation of lines	9	Injuries	50
Rerouting	36	Jobs	22
Improvements suggested:		Politics by employees	6
Equipment	150	Pension system	101
Physical	62	Miscellaneous	384
Industrial	119	Draft exemptions	13
Service	81		
Claims:			
Freight	595	Total	11,666

Since the signing of the armistice and the gradual reversion to or toward the normal that has followed, the number of complaints received shows a sharp decline averaging now hardly more than 100 a day as against a daily average of from 300 to 400 when the bureau was first established.

A Forest Products Section has been organized in the southwestern railroad region, under the Regional Purchasing Committee. C. O. Deabler, lumber buyer of the Missouri Pacific, and recently assistant to the manager of the Forest Products Section at Washington, is chairman of the Section. Dr. Hermann Von Schrenk is a member of the committee. It will supervise the tie and lumber purchases in the southwestern region.

Orders of Regional Directors

CONTINUATION OF MEMBERSHIPS, ASSESSMENTS, DUES, ETC.—Circular 136 of the Southwestern regional director, similar to file No. 102-A-444 of Eastern regional director, abstract of which appeared in *Railway Age*, January 24 (page 257).

Standard Form for Stationery.—Circular 164 of Southwestern regional director, similar to Supplement 5 to Circular 6 of Northwestern regional director, abstract of which appeared in *Railway Age* of January 24 (page 257).

Writing Material on Club Cars.—Circular of Northwestern regional director, dated January 21, similar to File No. 1600-83A433 of Eastern regional director, abstract of which was published in the *Railway Age* of January 24 (page 256).

Relations with Relinquished Short Lines.—In Supplement 1 to Circular 49 the Northwestern regional director states that short line railroads complain that they are not receiving a fair share of the business which is competitive with federal controlled roads. In order to get at the bottom of these criticisms the Northwestern lines are requested to prepare statistics on the business interchanged with connecting short lines in 1918, as compared with 1917, and also with 1916 if the figures are available, explaining in connection therewith any change in the character or volume of traffic, or the amount of short line earnings. The regional director states that the Railroad Administration is under obligations to treat the relinquished roads fairly; to this end it may be necessary in some cases to divert traffic arbitrarily in order to give them such a proportion of the competitive business as they would have received had there been no change in the control of connecting trunk lines. Northwestern lines are expected to suggest such changes in rates, divisions and routing as will best accomplish this purpose.

The Southwestern regional director issued similar instructions in Order 152.

Leave of Absence and Transportation for Representatives of Unions.—In Supplement 1 to Circular 69 the Northwestern regional director announces that leave of absence will be granted, when requested, to employees serving on committees of employees' organizations when it can be shown they actually represent the class of men for whom representation is claimed. In Supplement 40 to Circular 20 he adds that annual railroad transportation will be issued to general chairmen and members of committees of employees' organizations. When transportation is desired on other than home lines application should be made to the director of the Division of Operation. Annual Pullman transportation should also be requested from the Division of Operation.

Transportation for Express Company Employees.—In Supplement 1 to Order 132, the Southwestern regional director announces that upon the request of the respective vice-presidents of the American Railway Express Company, federal managers are authorized to furnish trip transportation to the families of employees when traveling at the request of or in the interest of the express company.

Handling Railroad Administration Mail.—In Supplement 1 to Circular 8 the Northwestern regional director announces that mail which relates to the business of railroads under federal control and which is sent by or addressed to officers or employees of lines of that class or to representatives of the Railroad Administration, may be handled as railroad mail on all railroads under government control.

Medical Attention for Sick and Wounded Soldiers.—In a circular dated January 22 the Northwestern regional director announces that the surgeon general of the War Department has assigned medical officers to the various transportation centers as liaison officers in connection with the transfer of sick and wounded soldiers. In connection with this movement there will be a medical officer of the United States Army in charge who has the instructions to report to the

proper medical officers of the army at Chicago full information respecting the party in his charge. These messages will be filed ordinarily six hours prior to the arrival time at Chicago. Railroads will co-operate in the prompt handling of this advance information and will give the army representatives all the information desired respecting the expected time of arrival of trains or cars, access thereto, information relative to breaking up trains at diverting points and other information regarding arrangements for the satisfactory and comfortable handling of the sick and wounded.

Director General's Name on Stationery.—Eastern regional director, file 1500-1-3-8A449, quotes a message from Edward Chambers, director, Division of Traffic, as follows

> The director general's name is to be used on time-tables for public distribution without unnecessary repetition on same time-table. It should be shown in the heading and affixed to such notices as require his name to give them effect. The style to be used in such cases is "United States Railroad Administration, Walker D. Hines, Director General of Railroads." The reading for tariffs will be "United States Railroad Administration, Director General of Railroads," followed by name of railroad. In new stocks of ticket forms and baggage checks contained in circular P-10, show only "United States Railroad Administration," followed by the name of the railroad in the same manner as shown throughout in the circular. Existing stocks of tickets bearing name of Mr. McAdoo as director general may be used. Please notify interested departments and tariff bureaus.

Services Performed by Counsel.—The Eastern regional director, file 1500-103A448, states that the following advice has been received from the general counsel of the Division of Law: "Counsel who are regularly retained and paid by the Railroad Administration may be called upon to handle matters arising in connection with any other road under federal control without additional compensation. If a large amount of additional work is imposed, application for additional compensation will be considered." Applications for authority to allow additional compensation, in accordance with the ruling quoted above, should be submitted to the regional director in cases where federal and general managers consider it equitable that the same be paid.

Leave of Absence to Employees to Attend Legislative Sessions.—The Eastern regional director, file 1203-13A446, states that, "I am advised that some railroad officers have declined to grant leave of absence to employees to enable them to attend legislative sessions for the purpose of handling legislative matters, the claim being made that this course is required by orders of the director general. The director general's orders do not require such course, and such leave should be granted in the usual way as heretofore."

Pilot for Trains Making Detour Movements.—The Eastern regional director, file 1200-272A461, states that it is reported that in a recent case of a detour movement a 14-car passenger train was detoured over a mountain railroad with a yardmaster who did not know the road as a pilot for the engineer. In all cases of detour movement a pilot who does know the road shall be furnished to the engineer, and when possibly available for such service an engineer shall be provided.

Cleaning and Disinfecting Stock Cars.—The Eastern regional director, file 500-81A459, quotes from a letter from W. T. Tyler, director, Division of Operation, as follows:

"The Department of Agriculture calls attention to the fact that considerable difficulty is being experienced at many points in the enforcement of that part of Bureau of Animal Industry Order No. 245, governing the movement of live stock, which reads as follows:

> Cars * * * which have been used in the interstate transportation of cattle, sheep, swine or other animals affected with any contagious, infectious, or communicable disease shall be cleaned and disinfected under bureau supervision, in accordance with these regulations, and the final carrier shall be responsible for such cleaning and disinfection.

"The number of violations which have been reported to the Department of Agriculture indicates that some vigorous measures are necessary in order to insure a more strict compliance with these regulations."

Ventilation of Coaches.—The Eastern regional director, file 2000-4-99A457, quotes from a report from the Committee on Health and Medical Relief of the Division of Operation, with reference to the ventilation of coaches, as follows:

> The Committee on Health and Medical Relief has received a great many complaints with reference to the ventilation of coaches. A large number of these complaints are made in connection with the temperature of the cars while standing in passenger stations, and from my own personal experience the complaint is, in a large number of instances, justifiable. The cars are either so hot that they are unbearable, or they are unnecessarily cold, due to the probable fact that they have been placed in the station only a short time before it is time for the train to leave the terminal. It would appear to me that some effort at regulation should be made, so that the temperature of these cars would be comfortable. I appreciate that the general subject of the ventilation of cars is a difficult one, and the committee is now gathering information with a view of seeing whether it cannot establish a more satisfactory plan than has yet been devised. In the meantime, I believe conditions could be very much improved by using a proper standard of temperature for the cars, and that as a guide, the cars be equipped with thermometers for control. Further, that instructions be given that the temperature of the cars be kept as near to 68 as possible. The committee will advise you fully of its final conclusion with reference to the subject of ventilation after it has completed its survey.

Special Car and Special Train Movements.—The Southern regional director has issued the following Supplement No. 1, to Circular Letter No. 77: "Former practice of securing specific authority from the director general for movement of private cars in trunk line territory has been discontinued. Please act accordingly in connection with all revenue movements of private cars on regular tariff basis."

Car Inspectors Needed.—The Eastern regional director, file 1200-271A453, states that C. B. Young, manager, Inspection and Test Section, 610 Southern Railroad building, Washington, D. C., is in need of car inspectors at plants building cars for the United States Railroad Administration and asks that railroads forward him the names of men at present in their employ who would make good inspectors on car construction, and who could be spared temporarily for the work.

Hearings Before Senate Committee

At Thursday's hearing before the Senate Committee on Interstate Commerce (see the article on page 306), C. E. Elmquist, president of the National Association of Railway and Utilities Commissioners, opposed an extension of federal control of railroads beyond the end of this year, but urged that Congress at the present session should adopt remedial legislation for the protection of the public by repealing the section of the control act which allows the director general to initiate rates without suspension, and to disregard other laws regulating carriers. He objected to the continuance during time of peace of the powers granted for war purposes. L. B. Finn, chairman of the Kentucky commission, appearing as a self-constituted unpaid representative of the unorganized public, declared private ownership cannot meet the transportation demands of the public, but condemned the Railroad Administration as dominated by men who had predicted failure of government control and declared against extension of the present plan.

The Railroad Administration has approved the continuation of work on the Chicago Union Station, amounting to $5,000,000, for this year, to be financed by the railroad companies, who are also expected to expend about $2,000,000 additional for incidental work on their own properties.

Railway Passenger Service During Federal Control*

By Gerrit Fort

Assistant Director, Division of Traffic, U. S. Railroad Administration.

WE MAY PROFITABLY engage in a little retrospective discussion about the past year and about the relations of the passenger men to what we have done that may help us to decide what ought to be done in the future. The necessary work of standardizing passenger practice under federal control has been unavoidably carried out largely by territorial traffic committees. It has not been the intention, however, of anyone who has been responsible for passenger affairs to ignore or minimize the importance or the value of the work of the passenger traffic manager or the general passenger agent. Your responsibilities have been increased. Today you are in the truest sense public servants and have a high duty to perform in seeing that the public receives adequate and comfortable passenger service.

I want to indulge here in one or two "don'ts." Don't minimize the importance of your position by saying you are obliged to do this or that thing because you are ordered to do so "by Washington." Don't get the idea that you are to be hampered by rules and regulations that will prevent your taking care of the public just as well under government control as you did under private operation. I am not referring to the reductions in passenger train service or lessened conveniences which were inevitable concomitants of the war and which the American public took very cheerfully, but to those little personal attentions which the passenger men gave so well in the past. Anything that could be done lawfully in the past can be done in the future. You ought to be just as solicitous for the comfort and welfare of the public under government control as under private management.

At the outset of federal administration there were those who seemed to regard the traffic men, freight as well as passenger, as more or less necessary evils and I must confess that there were times when I thought dark days had fallen upon the passenger fraternity, but it is remarkable how quickly the public gave voice to the sentiment that it would miss direct contact with traffic representatives and that sentiment is very thoroughly understood by the Railroad Administration. The consolidated ticket offices have been successful to a large extent in meeting the public needs, and, while they may still have some shortcomings, I have a rather definite conviction that these offices represent an added public convenience and that if and when the railroads are returned to private control the consolidated ticket office will remain as a permanent institution.

The present table d'hote meal in dining cars was put into effect primarily as a war measure. The suggestion was first made by the food administrator, Hoover, that the standardization of meals on the dining cars would be a desirable means of conserving food. The question was reviewed by the director general and his staff and it was decided, as quick action was necessary, to constitute an Inter-Regional Dining Car committee, chosen by the regional directors, which would be thoroughly representative of the dining car department of the railroads, and call for their recommendations. Jointly with a representative of the Food Administration these gentlemen produced a report in which they recommended the adoption of the present table d'hote luncheon and dinner and a simple a la carte menu for breakfast. That is the genesis of the present table d'hote dining car meal. There has been considerable complaint about it, but we believe that this has resulted from faults of administration rather than from faults of the system itself for the reason that there has been quite as much written praise of the service as complaint.

The criticism seems to come from two extremes of travel. First, from those gentlemen who regard a meal on a dining car as a sort of gustatory function and to whom the cost of the meal is a secondary consideration. Now, while the railroads ought to give their patrons well prepared, substantial food at reasonable prices, they should not undertake to rival the Ritz-Carlton or the Blackstone. The other complaints come from people to whom the payment of $1 for a meal may be a real hardship. To this class some relief should be afforded by furnishing supplementary service in the way of sandwiches, coffee, etc. There are already a number of railroads which are providing that sort of service in the coaches and the amplification of this service is something you ought to consider. I believe that between the classes I have mentioned is a vast army of travelers to whom a substantial meal at a reasonable fixed price appeals. It is not the intention to discard the present system until it has had a fair trial, which we believe it has not received up to the present time. Therefore, I want to bespeak your co-operation and support in seeing that the table d'hote plan does receive a fair trial.

Another thing that has been the subject of more or less criticism is the present regulations in regard to the making of Pullman reservations and the redemption of unused Pullman tickets. I want to remind you that some time before the railroads passed under federal control the rules substantially as they exist today were considered at a mass meeting held in Chicago and received at that time but one or two negative votes out of a very complete representation. Of course, at that time the refusal of one important line to join in the regulations was sufficient to defeat their adoption. The present rules assure everyone a fair deal, conserve the use of Pullman space, prevent speculation and, while there may be occasional cases causing inconvenience, perhaps hardship to individual passengers, in the main the rules are a public benefit. Modifications of the rules with a view to liberalizing them may be, I think are, necessary, but surely the passenger men who came so near to adopting these rules on their own initiative ought not to try to defeat them, but on the contrary ought to give them their full support and see to it that they are carried out in good faith.

Practically nothing has been adopted by the Railroad Administration in the way of reforms and changes in passenger practice that has not originated with the practical men who are serving on the territorial passenger committees and who were carefully selected by the regional directors as representative men, representative of you as well as of the public. If you sum up all the good and evil resulting to passenger traffic under federal operation, I think you will find the balance is overwhelmingly on the credit side and you should strive to retain that big balance. I hope these reforms are going to be permanent if the railroads return to private ownership. And remember that if we want to retain them we must not irritate the public by enacting petty rules which will stamp all of us as bureaucrats. Let us maintain the big things we have done and not give the public the idea that we are taking advantage of a temporary condition to establish rules that are inconvenient to the public and to take away from it privileges that it has enjoyed for a great many years.

*Address at annual convention, American Association of Passenger Traffic Officers, Baltimore, Md., January 22, 1919.

Sir John A. F. Aspinall, general manager of the Lancashire & Yorkshire Railway, of England, since 1899, has resigned that office, and he at once takes a place on the board of directors, having been elected to the board in December. He is succeeded as general manager by Arthur Watson, C. B. E.

Annual Report of the Exports Control Committee

THE EXPORTS CONTROL COMMITTEE has issued a review of its activities since its creation by order dated June 11, 1918, of which the following is a summary:

With the opening of headquarters in Washington, D. C., July 1, 1918, meetings have been held regularly each Wednesday for the purpose of determining—

(*a*) The probable amount of freight which must be exported for the prosecution of the war.

(*b*) How this war freight can best be routed through the various ports.

(*c*) How much of other essential export traffic has to be handled.

(*d*) The amount of local traffic necessary for each port.

The committee has also been charged with responsibility for—

(*a*) Selection of the port to which specified freight shall be transported for transshipment overseas for the use of the War and Navy departments, the Allied governments, and others.

(*b*) The distribution of the combined amount of all exports, as between the various ports, so as to facilitate its handling at and avoid congestion in any one port.

With a view to co-operating with the several interests, an office and working force were established at New York (headquarters of the Shipping Control Committee), which has afforded opportunity to keep in close touch with the heavy volume of war supplies moving through North Atlantic ports. This arrangement has also provided the means for obtaining necessary information, as well as prompt unified action upon matters involving the Shipping Control committee, Freight Traffic committee-North Atlantic ports, United States Food Administration New York Office, Traffic Executive and individual Allied government organizations.

So far as rail transportation is concerned, in order to facilitate and control the movement of war and food supplies to the seaboard to connect with vessels, handled under convoy system during the period of war, it has been necessary and desirable to continue the railroad shipping permit system which was inaugurated through the Freight Traffic committee-North Atlantic ports for northern range ports, and the Southern Export committee, Atlanta, Ga., for South Atlantic and Gulf ports, and much credit is due these committees for the efficient handling of the detail work involved.

Threatened congestion at Pacific coast ports necessitated the organization of similar committee at San Francisco, known as the California Export committee, controlling movement through California ports, and the North Pacific Export committee at Portland, Ore., controlling movement through Puget Sound ports.

In order to ascertain the amount of freight which must be exported for prosecution of the war and also distribute the combined amount between the several ports, arrangements were perfected for securing necessary data as to the cargo and ocean program of the United States government, Allied governments, and commercial interests. This data has been compiled weekly in detail, thus presenting the committee a graphic picture of the overseas situation and enabling it to quickly note the high spots in need of attention. A compilation was also made of facilities at all ports available for the prompt and efficient handling of exports.

For the purpose of routing freight from interior to the seaboard via most direct line and to eliminate so-called crosshauls, the Exports Control Committee Zone Routing Chart No. 1, showing groups of origin, together with natural seaboard assignments, was issued and placed in the hands of officials responsible for the routing of freight, with request for observance, except in cases of extreme emergency. This chart had the effect of conserving rail transportation and distributing the total export among the several ports, diverting considerable tonnage to South Atlantic and Gulf ports which was formerly routed through northern range ports.

The primary object of the permit system is to establish intimate contact with the individual or agency at the seaboard responsible for prompt acceptance of the property upon arrival at destination. In the case of export, it was found necessary to recognize only the steamship line (not the shipper) in filing application for railroad shipping permit, and in conjunction with the Delinquent Bureau meritorious performance is assured, otherwise favorable consideration of future applications, when presented by delinquents, necessarily must be held in abeyance, pending clarification of the record.

At the ports of New York, Philadelphia and Baltimore it was found necessary to apply the permit system to domestic carload traffic for twofold purpose: First, to prevent forwarding to the seaboard export traffic under the disguise of domestic; secondly, in conjunction with the Delinquent Bureau, to insure expeditious unloading upon the part of consignees, thus keeping the terminals, necessarily used jointly for export and domestic, free from congestion.

Another requirement of the domestic permit system is that it provides for initial shipment to a particular station delivery, which has effectually stopped former practice of consigning cars to the Metropolitan district, to be held upon arrival at the Jersey shore awaiting orders for a specific delivery, frequently involving expensive switching and an average loss of 48 hours transportation. To a considerable extent the same situation obtains at Philadelphia and Baltimore by reason of having the permits specify delivery desired, thus insuring continuous movement upon arrival at the outer yards of the terminals.

Intensive loading is also made a requirement of the domestic applications in order to reduce the car units on the terminals to a minimum, and as indicative of the efficacy, during December, current year, as compared with corresponding period previous year, the average tons per car for all roads serving the Metropolitan district increased 19.3 per cent.

Record movement of wheat developed early in July, due to large crop and fixed price by the government, which, together with a heavy movement of Australian and Argentine wheat to Atlantic ports for transfer to Allied vessels, threatened to congest seaboard elevator facilities. At the request of this committee the Food Administration established a branch office in New York to handle applications for permits on grain in connection with the Freight Traffic committee-North Atantic ports, thus regulating the flow to all ports so as not to exceed elevator storage capacity, but in sufficient volume to meet vessel requirements. It was also arranged to divert the Australian wheat to Gulf ports and transfer the Argentine wheat to Allied vessels in original sacks without burdening elevator facilities. The efficacy of the plan has been demonstrated by the fact that at no time has there been any material congestion at the seaboard due to grain movement, although the volume has been exceedingly heavy.

The constantly increasing volume of war supplies through northern range ports suggested that relief should be accorded by moving commodities originating in the South and Southwest, such as cotton and tobacco, through South Atlantic and Gulf ports. This program was followed to the extent of diverting considerable tonnage, principally account of the Allies, to the latter ports, although naturally the amount of cotton and tobacco so handled was limited to the measurement space thus available. For the purpose of fully utilizing measurement space at the more northerly ports arrangements were perfected for movement via coastwise steamers,

which in the case of cotton would have approximated 3,000,000 bales during the current season had the restrictions against all-rail movement to North Atlantic ports not been removed following the signing of the armistice.

The Traffic Executive was created by the several Allied governments to co-ordinate the work of shipping abroad all the freight necessary for war and commercial purposes. With the constantly increasing movement of overseas traffic essential for prosecution of the war, including the heavy volume of food requirements, it became imperatively necessary that all interested agencies, both inland and ocean, should keep in close touch, the one with the other, to insure maximum efficiency and consequent beneficial results.

At the recommendation of this committee the manager of inland traffic, United States Food Administration, was made a member of the Traffic Executive, Allies, and representative of the Traffic Executive became associated with the Food Administration, New York office, thus helping to make the rail and ocean movement as nearly continuous as possible. The benefit of this arrangement has been far-reaching, particularly during later months when the question of food supplies has been paramount.

Co-ordination of the several governmental agencies interested in inland and ocean transportation has been developed through weekly conferences with the Food Administration, inland traffic service of War and Navy departments, and the several departments of the Railroad Administration at Washington; also weekly conferences with Traffic Executive, Allies, United States Grain Corporation, Shipping Control Committee, Freight Traffic committee-North Atlantic Ports, and American Iron & Steel Institute at New York, all of which has served to accomplish many objects otherwise perhaps unattainable.

In view of the abnormal traffic burden imposed upon the rail lines to, and terminal facilities at Hampton Roads, it was felt desirable to relieve the situation by diversion of freight, particularly coal, to other ports. Accordingly, the ports of Norfolk and Newport News, including grain elevator at the latter point, were assigned exclusively for the handling of United States Army freight. The Navy department provided storage facilities at Charleston, S. C., for 150,000 tons of bunker coal, to be moved from Pocahontas and New River districts, and the Allied governments also arranged for handling of Clinchfield and New River coal to Charleston, S. C., account return cargo for grain vessels from the Argentine.

The prospects of a Siberian campaign, with consequent heavy overseas movement through Pacific coast ports, already more or less congested account shortage of ocean tonnage, necessitated the adoption of permit system of control to insure maximum transportation without confusion. The two committees organized, North Pacific Export committee for Puget Sound ports and California Export committee for California ports, began operating under general embargo effective September 13, 1918, since which time the situation with respect to San Francisco has been practically normal. The conditions at Seattle and Tacoma have required close attention, due to violations of the embargo and lack of ocean space through diversion of Japanese vessels to other ports account inability to secure return cargoes from the Orient under import restrictions. Efforts are now being made to relieve the situation by more liberal policy upon the part of the War Trade Board in the issuance of import licenses and the assignment of vessels by the Shipping Board to lift any undue accumulations.

Movement of Russian freight account of the newly organized War Trade Board of the United States Russian Bureau (Inc.) is being handled satisfactorily under an arrangement whereby emergency permits are issued at Washington in the office of the Exports Control Committee upon application of the bureau.

It has been the policy of the committee to divert all the tonnage possible to South Atlantic and Gulf ports in order to relieve the already overburdened Northern range ports, the longer ocean voyage to be equalized by the quick turnaround. The results accomplished have been very gratifying, particularly willingness of the Allied governments to utilize southern ports, thus permitting the War department to concentrate on northern ports in connection with troop movement.

Changed conditions, brought about by signing of the armistice, necessitated prompt action to avoid congestion at the seaboard, War department freight in transit on November 11 alone approximating 20,000 cars. Instructions were issued to hold eastbound overseas freight (except subsistence, forage and clothing) at interior junction points, to be diverted to interior storage or moved to ports as needed. Current production was also taken care of at interior government storage located at New Cumberland, Middletown, Pa., Columbus, Ohio, and South Schenectady, N. Y. Storage has also been arranged for some 50,000 tons of sundry materials to be returned from abroad account of the Navy department.

In the case of Allied government freight, production of munitions, barbed wire, etc., was immediately stopped and arrangements perfected to store cars en route or at the ports in private storage, also storage furnished by the United States government. Other freight, including airplane lumber, has been promptly cleared upon arrival at the seaboard.

Owing to the absence of suitable storage facilities for high explosives en route to or on cars in vicinity of ports account of the United States and Allied governments, and the serious menace through holding on cars, it was recommended that this material should be taken out to sea and thrown overboard, which disposition is now being arranged.

With the cessation of hostilities, it soon became apparent the overseas movement would be as great, if not greater, than preceding months, as indicative of which the British program for December aggregated 2,540,776 tons, or almost 1,000,000 tons in excess of any previous month during the war. The character of tonnage also changed, flour, grain and other food supplies comprising the major portion of the program. The necessity for prompt movement of this large volume of freight will continue so long as a substantial army force is maintained on the other side, and with the advent of winter weather, it is the opinion of this committee that transportation conditions will require continuance of the present permit system of control to insure proper distribution and avoid congestion.

The allocation of 10 per cent of all space on liners by the British government for commercial shipments, with prospects for early release of additional space, together with removal of restrictions on export and import traffic by the War Trade Board, will have the effect of greatly stimulating export trade and every effort is being put forth to foster this program without interfering with the essential food movement, although it is apparent that some supervision must be maintained over commercial traffic until such time as normal conditions may be resumed.

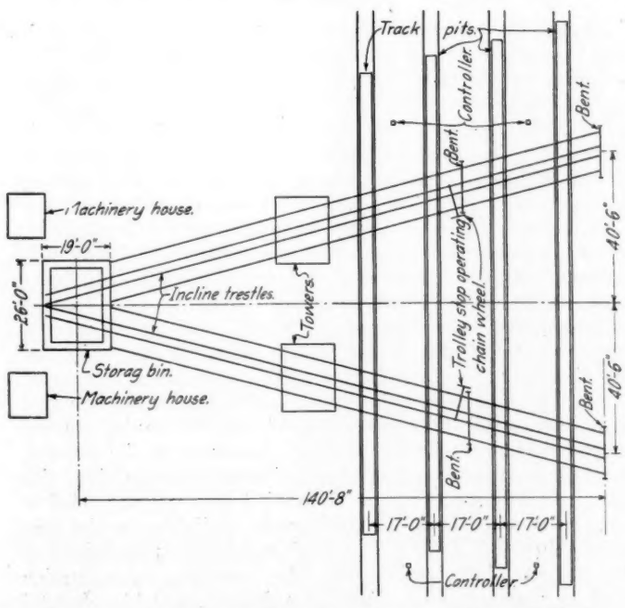
To continue the construction of the government railroad in Alaska for the fiscal year beginning next July, the sum of $4,000,000 will be asked of Congress by the Alaskan Engineering Commission, according to a statement in the Alaska Railroad Record. The principal items in the estimates of the commission are $1,286,526 for construction in the Anchorage division; $718,340 for the Seward division; $880,304 for the Fairbanks division; $712,220 for operation in the Anchorage and Seward divisions, and $329,890 for operation in the Fairbanks division. Provision is made in the estimates for the continuation of the construction of a dock at Anchorage and the purchase of 4,000 tons of rail at $70 a ton.

General View of the Cinder Handling Plant

A New Type of Locomotive Cinder Handling Plant

Pittsburgh & Lake Erie Facilities at Youngstown Include Incline Hoistway to a Storage Bin

A UNIQUE CINDER HANDLING PLANT was recently completed for the Pittsburgh & Lake Erie at Hasleton Yard, Youngstown, O. It is a development of a type of cinder handling equipment applied to earlier plants of smaller capacity by the builders, the Roberts & Schaefer Company, Chicago, for the Pittsburgh & Lake Erie at College, Aliquippa, Monessen and Newell, Pa.



Layout of the Track Pits, Trestles and Storage Bins

The character of the plant is shown in the photograph. Cinders are received from the ash pans of the locomotives in steel buckets resting in concrete pits between the rails. The buckets are hoisted out of the pits and up an incline and are dumped into the top of a concrete storage tank. The plant serves four tracks, each of which is equipped with a concrete pit 125 ft. or more in length. These pits are of a sufficient width and depth to accommodate buckets of 55 cu. ft. capacity, 3 ft. 8 in. wide and resting on four-wheel trucks so as to give an over-all height of about 3 ft. 10 in. These trucks run on a 3-ft. 1¼-in. gage track, so that the buckets are spotted readily under the locomotive ash pans to receive the cinders and are then rolled to the points of hoisting. Each bucket is provided at each end with a cast steel lug or trunnion to engage hook-shaped sockets on a steel bail attached to the hoisting equipment so that the bucket may be picked up out of the pits readily when loaded and set down in the pits and released when empty.

The hoisting arrangement, which is in duplicate, consists of two inclined trestles extending over the four cinder pit tracks. These trestles cross the tracks on a skew and converge toward the storage bin as they ascend to the dumping equipment at its top. Each of these trestles is fitted with a 2-ft. 2⅝-in. gage track to carry a trolley operated by a hoisting line passing over an idler pulley at the upper end of the incline and down to a hoist in a house at the foot of the storage tank. The trolley, hoisting line and bail are arranged in such a way that the trolley remains in a fixed position over the pit as the bail with the bucket attached is being hoisted, until the bail comes in contact with the trolley, after which the latter moves up the incline to the top, where the bucket is tripped over in its trunnions and empties into the bin. On the return trip to the track pits, the trolley may be stopped over any one of the four tracks by pivoted wheel blocks, any pair of which may be interposed at the will of the operator, with the aid of an operating bar controlled by a hand chain.

The movement of the trollies in hoisting is controlled by

controllers located convenient to the track pits, but Cutler-Hammer automatic controllers and Palmer limit switches prevent overwind of the hoisting cables when the trolley reaches the upper end of the trestles.

The plant is located only 250 ft. from a 900-ton capacity coaling station, also built by Roberts & Schaefer Company, which serves the same four tracks that are equipped with the track pits for the cinder plant. The cinder storage tank is served by the track that leads over the track hopper of the coaling station so that coal cars dumped at the track hopper may be dropped back to the cinder bin to be loaded with cinders. Since the completion of this plant contracts have been awarded for similar facilities on the New York Central at Youngstown, Ohio, and Minerva.

Valuation Progress

A STATEMENT of recent developments in connection with federal valuation work has been issued by Frederick H. Lee, secretary of the Presidents' Conference Committee on Federal Valuation, under date of January 2. Among recent developments referred to in this statement are the fact that the Kansas City Southern has filed a petition and order for a writ of mandamus with the Supreme Court of the District of Columbia to compel the Interstate Commerce Commission to receive testimony as to the cost of reproduction of its lands, the commission having overruled a similar motion made by the railroad on November 15, 1918.

The rule before the Supreme Court was made returnable on December 10, but postponement of the argument was granted until January 4.

A plan is being developed whereby the completion reports required by the Division of Valuation under Order No. 3 are to be retained in the files of the carriers and only quarterly and annual returns made to the division. It is not the intention of the Bureau of Valuation at the present time to request any reports under this order, but the carriers will be required to keep the data in their files.

Notice has been given of a hearing before Commissioner Meyer, of Chicago, beginning January 20, on the valuations of the Elgin, Joliet & Eastern, the Chicago, Lake Shore & Eastern and the Joliet & Blue Island properties.

I. C. C. Rulings

Certain tentative interpretations have been made by Division 1 of the commission of the decisions in the Texas Midland and the Winston-Salem Southbound as follows: Where carriers agree as to the ownership of railroad crossings, the property should be inventoried to the owner or owners. Where no agreement is reached the conclusion of the commission as announced in its decision in Valuation Docket No. 5, Winston-Salem Southbound case, should be followed. This we also understand to be in conformity with the present practice of the bureau. The rule announced in the Winston-Salem Southbound case is as follows:

"It has been the practice of the bureau of valuation to apportion the estimated costs of reproduction in accordance with any agreement as to the ownership of property of this character which the interested carriers may make. Failing such agreement, the cost of reproduction estimates of the junior carrier omit, in the case of under-crossings, anything for the assumed reproduction of structures used entirely for the passage of the trains of the senior companies; but the cost of reproduction estimates of every junior carrier includes the estimated cost of reproducing the property exclusively used by it. One-half of the estimated cost of reproducing property commonly used by both carriers, such as crossing frogs, is carried into the tentative valuation of the southbound company. Such practice has been followed in the tentative report in this case."

Time tables, tariffs, etc., should not be embraced in the reproduction inventories nor shown in the statement of property of carriers.

Abandoned property should not be included in the reproduction inventories.

If the ownership of interlocking plants is known, they should be inventoried to the owner or owners. In the absence of such knowledge they should be apportioned among the using carriers according to use.

Where property off the right-of-way is a necessary part of the property of the carrier devoted to the public use it should be inventoried to the carrier; otherwise it should be included in non-carrier property owned. This rule would probably mean that the viaducts and rip-rap on the Kansas City Southern should be included in the reproduction inventories for that carrier.

The appraiser in the field shall determine whether the particular street, alley or highway is in fact a street, alley or highway, dependent upon the facts in connection with each individual piece of land and without regard to the number of inhabitants of the settlement in which they are found. In the case of exclusively used streets they shall be included in the land report as land owned and used for common-carrier purposes in instances where the carrier can show title or produces an order of vacation or satisfactory proof that such an order was entered; otherwise they shall be excluded. In the case of partially used streets or alleys nothing shall be included in the land report on account of such areas unless it affirmatively appears that the carrier owns it. In those instances where it is included the value to be stated will be determined in view of the conditions of its use. Highways which are used by carriers shall be included in the land report as land owned and used for common-carrier purposes unless it affirmatively appears that the carrier does not own the land, but the land section shall make no extended investigations to determine ownership.

Progress

During the year the valuation work and inventory of the Bureau of Valuation has progressed quite steadily. No tentative valuations have been served by the commission during this period, but now that many elemental questions which have been in controversy have been decided by the commission in the valuations of the Texas Midland and the Winston-Salem Southbound it is thought that other carriers will be served in the near future. A considerable number of carriers have, however, been furnished with copies of inventories in preliminary form and conferences are being held between the representatives of the carriers and the Bureau of Valuation in order to adjust so far as possible any errors or omissions and other differences so that such items may be corrected in advance of the service of a tentative valuation and thus reduce the number of issues to be raised by protest.

The expenditures of the Bureau of Valuation for the year ending June 30, 1918, were $3,384,444.31; leaving an unexpended balance of $115,913.73. According to the terms of the bill carrying the last appropriation for valuation, this unexpended balance was to be carried forward and used in connection with the $3,500,000 made available for the year ending June 30, 1919. The total expenditures on behalf of the Bureau of Valuation from the beginning of valuation work to June 30, 1918, have been $12,251,517.43. A total of $4,111,373.06 was expended in connection with valuation work by the carriers reporting to the Presidents' Conference Committee during the year ending June 30, 1918 (four companies not reporting), making a total amount for the five years ending June 30, 1918 (with the above omissions), of $24,578,521.93.

General News Department

The proposed dismantling of the Colorado Midland has been stayed by the Railroad Administration as the result of agitation by shippers and state officers of Colorado, who ask the government to take over and operate the road. Representatives of the shippers and of the Colorado Public Service Commission have been assured by the Railroad Administration that practicable recommendations will receive earnest consideration.

The American Association of Engineers, which has a railroad committee studying the railroad wage problem as affecting civil, mechanical and electrical engineers employed by the railways, will set aside for the use of this committee one half of all receipts from new railroad members during the month of January. This money will be used to make a study of the wages paid to technical engineers in railway employ and to make representation of the results to the Board of Railroad Wages and Working Conditions, the regional railroad directors and others. The railroad committee is composed of W. H. Finley, president of the Chicago & North Western; E. H. Lee, president of the Chicago & Western Indiana, and W. W. K. Sparrow, corporate chief engineer of the Chicago, Milwaukee & St. Paul.

Roy U. Conger, of New York City, a manufacturer of airplane parts, has bought from the British Government 350 airplanes and a large quantity of engines and accessories, heretofore used in Canada for training aviators for the military service, and proposes to use the machines in the operation of commercial routes in Canada. This statement, taken from the New York Sun, is based on transactions closed at Toronto, Ont., on January 29. Mr. Conger is said to be perfectly confident that the use of airplanes for transporting passengers, mail and parcels can be made profitable in Canada; and presumably also in the United States. This air equipment is said to have cost ten million dollars; and an offer of $400,000 had previously been refused because of a probability that the airplanes would be sold subsequently at auction and would fall into the hands of irresponsible persons.

The Engineering Societies' Employment Bureau, New York City, desires that state and municipal authorities, corporations and individuals who need the services of professional engineers communicate their wants to the Bureau, 33 West Thirty-ninth street. This bureau is maintained by the four national Societies of Civil, Mining, Mechanical and Electrical Engineers. In behalf of engineers who have been serving in the army or in government capacities during the war, it is the desire of the Engineering Societies to get in touch with contemplated engineering projects as early as practicable. By resolutions adopted unanimously (by the 650 members present at its annual meeting) the American Society of Civil Engineers has recorded "its profound conviction that public works should be carried forward to the fullest extent consistent with sound judgment, not only for fundamental economic reasons, but for humanitarian reasons."

Arthur H. Johnson, signal and telegraph engineer of the London & South Western, has resigned from that office on account of failing health; and the directors of the company have granted him a pension. Mr. Johnson began his career in England, but he is well-known in America, having been for several years connected with the Union Switch & Signal Company, and later with the Johnson Railroad Signal Company. He was also for about three years signal engineer of the Erie Railroad. When he left that road he returned to England and was engaged in manufacturing with W. R. Sykes, the well-known inventor of the Sykes controlled manual block signaling apparatus. While there he entered into a contract with the New Zealand Railways and spent several years in New Zealand in establishing the signal and telegraph department of the railways of the islands. He had been with the London & South Western nineteen years. Mr. Johnson is the author of numerous valuable writings on signaling subjects, notably a review of the history of signaling on English railways, presented before Harvard University in 1894, and reported in the Railroad Gazette in August, September and October of that year.

Railway Honor Men

J. A. Edson, federal manager on the Kansas City Southern and other lines, reports that 1,067 officers and employees of the roads under his managership served in the army and navy during the war. The distribution of these men is as follows: Kansas City Southern, 594 men; Midland Valley, 80; Houston East & West Texas, 64; Vicksburg, Shreveport & Pacific, 88; Missouri & North Arkansas, 108; Kansas City, Mexico & Orient, 133.

Fatal Troop-Train Collision in France

A press despatch from Paris, January 25, reports 18 American soldiers killed and 30 injured in a collision between a troop train and a freight at Nanoirs.

Probably Sent at Government Rate

No wonder Mr. McAdoo couldn't live on $12,000 a year. Here he is without a job, and he sends a thousand-word telegram to the waterways convention about 5-year government control of railroads.—*F. P. A. in New York Tribune.*

Want Railroads Returned to Owners

The Lumbermen's Association of Chicago, at its annual meeting, on January 20, adopted a resolution calling for the return of the railroads to private operation as promptly as possible, with suitable remedial legislation. The association also endorsed the resolutions of the Railway Business Association, and favored an extra session of Congress to secure prompt action.

Disapproval both of government ownership and government operation has been voiced also by numerous organizations all over the country, among which are the National Live Stock Association, which took action at Denver on January 24, and the San Francisco Chamber of Commerce.

A large meeting of Texas shippers, held at Dallas on January 25, took similar action. The New York Evening Post during the past week has published letters from careful correspondents reporting similar views in St. Paul, St. Louis, Memphis, Philadelphia and Boston; and a letter from Kansas City reports business and farming interests as in a critical mood, having found railroad service unsatisfactory.

"Safe Practices"

The sixteenth number of the Safe Practices Bulletin of the National Safety Council is a ten-page illustrated monograph on safe clothing for men and women in industry. These excellent brochures contain a large amount of useful information, gathered from varied sources and clothed in lucid and vigorous language. Some members of the Council, to encourage the wearing of suitable clothes, provide women employees with the first suit free of charge.

Pamphlet No. 17 is entitled "Yards" and deals with all kinds of outdoor operations in the yards of industries.

No. 18 is on Power Presses. The ingenious recent devices for preventing workmen from injuring their hands or feet in these ponderous machines are innumerable. One picture shows a large press, in a shop of the Ford Motor Company, where each of two men must press an electric push button with each hand before the machine can be operated.

These pamphlets are provided, at a cost of ten cents each, by the National Safety Council, 208 South LaSalle street, Chicago.

Simplification Run Mad

In Mr. McAdoo's list of "advantages" of unified operation of the railways is mentioned the "elimination of the old practice of paying mileage or per diem rental for the use of freight or passenger cars of one carrier by another." Thus the roads which have let their cars go to other lines have no way to get them back, no matter how badly they need them. Government ownership would not obviate the necessity for some sort of distribution of cars and some way of maintaining such distribution. There is a fundamental weakness in the entire theory of running the railways "for the good of the whole country." It would mean reducing railway service in general to the minimum. It would mean only occasional freight trains on the smaller lines. It would mean the denial of proper passenger train facilities for hundreds of interior towns not located on the lines chosen for through passenger traffic. The general tendency would be to retard development of the rural sections. Merchants might as well talk of running their stores only during the rush seasons. We might as well plan street car service only during the rush hours. It would be as feasible to have telegraph offices only in the large centers of population, or to keep hotels open only during conventions. No business can live exclusively on cream. There are long periods when nearly every business runs at a loss, but it must take care of its regular patrons' needs.—*St. Louis Globe-Democrat.*

A Message from the Ex-Director-General

Although retired to private life, W. G. McAdoo, former director-general of railroads, is still actively pushing his plan for a five-year extension of Government control of the railroads. In a telegram to an inland waterways meeting at Defiance, Ohio, last Monday, he said:

"The confusion of counsel about the railroad problem, made daily more evident by the great variety of conflicting views and opinions now being presented at Washington, makes it more and more clear that the course of wisdom, sagacity and prudence is to extend Government control of the railroads for five years, that our inland waterways be developed to the largest possible extent during that period, and that these inland waterways and rail facilities be co-ordinated with our great merchant marine in an endeavor to get for American business enterprise a fair participation in the benefits of world commerce.

"The powerful and sleepless forces of reaction are solidly arrayed against this plan. They will defeat it unless the American people are aroused to the situation. The time is short. The matter is vital. My earnest suggestion to you and your associates is that you press upon the attention of the Congress the importance of the five-year control in order that the things you want to accomplish may be brought about."

National Rivers and Harbors Congress

The railroad problem has an important part in the tentative program which has been issued for the fourteenth convention of the National Rivers and Harbors Congress to be held at Washington on February 5, 6 and 7. The subject for discussion on Thursday, February 6, is "What Shall Be Done With Our Railroads?" Charles F. Nesbit, of Washington, D. C., will discuss this question on the side of government ownership; Samuel O. Dunn, editor of the *Railway Age*, will discuss the return to private ownership, and William Jennings Bryan will discuss a dual plan of ownership. Other topics for discussion are: "Shall waterways as well as railways be placed under control of the Interstate Commerce Commission, which shall have power not only to establish through rail and water routes, but to fix both maximum and minimum rates?" "Shall railways be allowed to continue to make extremely low rates to points on waterways, while maintaining much higher rates to inland points?" "Should railway rates be the same for equal distances to both inland and waterway points?" "Should railway rates be lower to waterway points than to inland points, providing the difference in rates for equal distances is not more than 20 or 25 per cent?"

The program also includes addresses on "What the Government Is Doing for Water Transportation," by G. A. Tomlinson, director of the Division of Inland Waterways of the United States Railroad Administration; on "Transportation," by Major Gen. William M. Black, chief of engineers, U. S. Army, and on "The Essential Unity of Transportation by Water, by Rail, by Road, on Land and on Sea," by William C. Redfield, Secretary of Commerce. Walker D. Hines, director general of railroads, is also expected to address the Congress.

The June Mechanical Convention

J. D. Conway, secretary of the Railway Supply Manufacturers' Association, on January 23, sent out circular No. 1 extending an invitation to manufacturers of and dealers in railway supplies to exhibit at Atlantic City in June, and giving full details as to the exhibit arrangements.

In his circular, Mr. Conway says:

"This is the first exhibition that has been held for three years. The railroad associations have expressed their earnest desire that our association should make a full exhibit, and the United States Railroad Administration gives its unqualified approval of it. Invitations are being extended in the name of the three associations to all foreign trade bodies in this country, and, through the embassies at Washington, to all foreign governments (except the Central Powers), inviting them to send delegates or representatives to attend the conventions and examine the exhibits. The opportunity presented by an exhibition at this time for both the domestic and foreign demand is exceptional."

Wood Preservers' Meeting

The fourteenth annual meeting of the American Wood Preservers' Association was held in St. Louis on Tuesday and Wednesday of this week with a registration of over 250, the largest attendance on record. An unusually large percentage of railway men were present.

On Wednesday afternoon the tie problem was discussed, with John Foley, of the Forest Products Section at Washington, and others speaking. Chicago was selected as the meeting place for the next convention.

J. B. Card, president of the Central Creosoting Company, Chicago, was elected president of the association; A. R. Joyce, Joyce-Watkins Tie Company, Chicago, first vice-president, and C. M. Taylor, superintendent of the Port Reading Creosoting Plant, Port Reading, N. J., second vice-president. F. J. Angier, superintendent of timber preservation, Baltimore & Ohio, was re-elected secretary-treasurer.

On Thursday and Friday following the meetings, the tie producers of the country held conferences looking to the organization of a national association. There were long discussions on the centralization of purchases by the government.

American Society of Civil Engineers

Fayette Samuel Curtis, of Boston, Mass., president of the Old Colony Railroad, has been elected president, for the year 1919, of the American Society of Civil Engineers. Other officers named were H. S. Crocker, Denver, Col., and Leonard Metcalf, Boston, Mass., vice-presidents; A. S. Tuttle, New York, treasurer; G. H. Clark and Jacob S. Langthorn, New York; Charles C. Elwell, New Haven, Conn.; Willard Beahan, Cleveland, Ohio; John W. Alvord, Chicago, Ill., and Carl E. Grunsby, San Francisco, Cal., directors.

REVENUES AND EXPENSES OF RAILWAYS

ELEVEN MONTHS OF CALENDAR YEAR 1918

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of										
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	General.	Total.					
Houston & Texas Central	931	$5,649,722	$2,002,432	$8,240,926	$1,059,252	$1,437,932	$113,386	$3,674,728	$204,919	$5,887,851	71.45	$2,353,077	$396,463	$1,950,132	—$1,429,885
Illinois Central	4,777	72,936,745	18,457,021	98,190,218	14,669,219	23,293,661	787,623	39,158,169	2,361,832	80,817,657	82.37	17,372,561	4,689,688	12,669,441	—5,828,726
Indiana Harbor Belt	116	.....	.....	5,061,456	1,062,523	1,214,003	20,523	3,302,792	145,757	5,745,597	113.52	—684,141	110,535	—794,678	—1,794,649
International & Great Northern	1,159	8,102,439	3,305,678	12,298,539	1,829,463	2,741,718	149,830	5,323,762	408,888	10,440,172	84.88	1,858,367	330,000	1,526,327	—1,647,385
Kanawha & Michigan	176	4,252,198	1,018,491	5,472,767	633,995	1,379,582	30,976	1,712,226	118,462	3,875,246	70.81	1,597,521	219,674	1,377,847	581,873
Kansas City, Mexico & Orient	272	986,344	144,433	1,189,851	226,991	500,734	36,533	620,006	78,869	1,463,113	122.97	—273,262	68,870	—342,134	—281,368
Kansas City, Mexico & Orient & Texas	465	915,554	136,621	1,111,526	247,582	420,541	28,754	603,608	57,004	1,357,489	122.12	—245,964	55,000	—301,663	—250,991
Kansas City Southern	774	10,868,907	1,999,583	13,863,378	1,570,308	2,618,646	204,967	5,420,095	429,065	10,233,220	73.81	3,630,158	627,122	3,000,805	—863,370
Kansas City Terminal	24	.....	.....	1,138,953	152,611	249,306	....	578,948	10,261	996,094	87.45	142,858	197,676	—56,999	—114,807
Lake Erie & Western	900	7,576,699	567,118	8,570,884	1,141,474	2,188,536	134,995	3,901,182	236,044	7,594,270	88.60	976,614	312,739	663,027	—1,067,845
Lehigh & New England	231	3,384,203	15,539	3,655,167	486,535	706,454	55,081	1,241,607	91,350	2,580,798	70.61	1,074,370	95,409	978,961	—239,487
Lehigh & Hudson River	96	1,971,930	41,487	2,104,599	303,276	400,821	17,830	975,157	61,712	1,758,796	83.57	345,804	65,600	280,185	—408,569
Lehigh Valley	1,441	49,076,480	5,722,911	59,692,726	7,010,091	15,287,463	608,680	27,659,912	1,090,505	51,804,238	86.78	2,888,489	1,776,176	6,110,449	—3,320,357
Long Island	398	5,183,986	13,299,623	20,552,913	2,461,286	2,838,682	122,185	8,827,209	453,738	14,853,511	72.26	5,699,402	988,579	4,707,558	346,104
Los Angeles & Salt Lake	1,167	8,963,446	3,325,658	13,247,833	1,674,630	2,743,696	251,725	4,589,254	279,456	9,791,534	73.91	3,456,499	677,050	2,778,085	—1,150,537
Louisiana & Arkansas	302	1,120,069	338,422	1,525,579	324,074	282,563	34,399	603,160	60,576	1,304,774	85.52	220,806	119,673	100,979	—203,210
Louisiana Western	207	2,612,258	1,125,448	3,973,791	313,193	582,415	62,292	1,031,566	109,560	2,121,673	53.39	1,852,118	152,284	1,697,083	107,267
Louisville & Nashville	5,026	64,859,294	21,944,037	91,748,391	11,520,943	21,321,916	1,255,585	35,723,376	1,607,064	71,720,748	78.17	20,027,642	2,814,935	17,200,584	—1,798,345
Louisville, Henderson & St. Louis	199	1,800,986	699,528	2,595,702	365,221	373,350	63,696	933,634	56,058	1,796,033	69.19	799,669	57,648	741,745	76,909
Louisiana Railway & Navigation Co.	356	1,969,202	672,813	2,803,660	453,505	469,743	48,551	1,262,546	85,454	2,319,800	82.74	483,868	154,000	329,625	—139,571
Maine Central	1,216	9,777,724	4,010,598	14,985,764	2,431,423	3,171,395	127,298	8,169,448	358,652	14,304,187	95.45	681,577	733,485	—52,159	—2,720,090
Maryland, Delaware & Virginia	82	611,709	345,769	983,622	85,592	243,835	10,840	647,012	19,699	1,006,677	102.37	—23,356	17,479	—40,834	132,543
Michigan Central	1,861	41,367,403	14,521,888	61,951,200	7,061,301	11,453,230	688,356	25,548,073	1,044,680	46,620,922	75.25	15,330,278	1,790,800	13,533,030	—2,362,331
Midland Valley	386	2,405,056	649,681	3,181,241	499,252	538,326	24,391	1,161,322	118,193	2,341,484	73.60	839,757	78,599	760,970	3,687
Mineral Range	100	994,045	24,801	1,047,741	181,784	246,868	4,339	561,186	12,028	1,006,204	96.03	41,537	36,869	4,668	—24,426
Minneapolis & St. Louis	1,646	8,509,550	1,850,971	10,960,670	1,968,521	2,717,879	142,938	5,205,862	285,317	10,319,358	94.14	641,318	573,429	64,359	—2,159,235
Minn. & International Ry	195	617,825	257,670	923,397	192,016	185,063	4,916	468,737	36,224	886,957	96.05	36,440	50,302	—13,914	—242,086
Minn., St. Paul & Sault Ste. Marie	4,239	23,948,250	5,729,010	32,025,114	4,930,627	6,657,180	338,000	14,314,315	771,190	27,131,778	84.72	4,893,336	1,991,921	2,901,119	—6,073,056
Missouri, Okla. & Gulf	332	1,307,972	273,623	1,658,930	380,273	516,666	23,278	873,579	98,095	1,896,716	154.33	—237,756	97,960	—337,492	—582,727
Missouri Pacific	7,231	57,398,651	17,800,713	81,498,804	12,905,091	17,020,571	1,001,308	32,935,486	1,941,127	66,066,643	81.06	15,432,160	3,065,533	12,351,620	.....
Mobile & Ohio	1,106	10,863,143	1,860,949	13,499,826	1,761,946	4,274,463	337,368	6,105,474	399,000	12,880,608	95.45	619,856	474,857	142,170	—2,421,887
Monongahela	108	2,608,284	207,510	2,915,936	652,177	307,032	12,391	985,149	58,412	2,015,161	69.10	900,775	49,516	851,253	144,087
Monongahela Connecting	5	.....	.....	2,245,461	301,412	381,718	4,816	1,191,054	62,430	1,941,429	86.46	304,032	25,473	278,558	139,028
Morgan's La. & Tex. R. R. & S. S. Co.	400	5,265,756	1,692,132	7,511,098	779,615	1,298,482	86,525	2,613,332	175,079	4,978,944	66.28	2,532,155	320,218	2,209,440	—136,439
Nashville, Chattanooga & St. Louis	1,238	13,317,258	5,438,724	19,864,025	2,314,967	4,452,168	408,578	8,344,813	442,155	16,024,020	80.66	3,840,005	366,674	3,471,915	650,818
Nevada Northern	168	2,258,479	168,977	2,488,027	261,503	301,152	9,356	596,339	62,685	1,232,295	49.52	1,255,732	188,115	1,067,005	135,149
Newburgh & South Shore	7	.....	—246	1,318,919	169,935	242,054	.....	597,351	32,732	1,041,071	78.93	276,848	77,800	199,048	276,805
New Orleans & North Eastern	303	3,934,559	1,356,442	5,902,664	656,375	1,323,228	89,589	2,475,611	127,586	4,706,938	79.74	1,195,727	300,713	894,404	—231,918
New Orleans, Great Northern	284	1,541,801	411,146	2,040,349	294,523	369,688	29,464	697,501	80,269	1,474,898	72.28	565,451	89,842	475,245	—70,724
New Orleans, Texas & Mexico	191	1,301,168	435,078	1,787,889	334,576	363,914	26,806	561,202	66,548	1,358,801	76.00	429,088	88,900	339,803	—78,678
New York Central	6,079	172,412,190	62,141,006	267,308,435	30,622,089	56,066,791	2,558,114	111,468,045	6,222,571	210,373,215	78.70	56,935,220	11,706,750	45,204,759	—3,944,445
New York, Chicago & St. Louis	572	17,791,141	1,726,891	20,151,020	2,336,480	3,759,579	352,896	8,944,884	508,998	15,742,783	78.12	4,408,236	502,500	3,905,581	1,017,916
New York, New Haven & Hartford	1,992	46,704,584	35,812,869	93,686,061	12,436,956	18,811,111	432,887	42,877,434	2,760,699	78,888,546	84.20	14,797,516	3,019,000	11,764,275	—7,833,150
New York, Ontario & Western	567	6,564,911	2,060,589	10,071,606	1,388,433	2,449,509	96,172	4,807,903	229,802	8,971,819	75.55	1,099,188	272,848	824,890	—1,292,239
New York, Philadelphia & Norfolk	121	5,170,785	1,145,446	6,867,317	617,999	1,589,775	106,692	3,075,404	120,907	5,673,149	82.59	1,194,168	180,387	1,013,687	—233,691
New York, Susquehanna & Western	135	3,092,254	563,951	4,015,791	2,105,222	643,231	22,791	2,285,137	83,071	3,439,307	85.64	576,484	165,233	411,148	—188,502
Norfolk & Western	2,084	63,177,246	9,221,018	75,175,346	8,674,878	19,514,145	496,377	26,221,148	1,203,685	56,281,286	74.86	18,894,060	2,704,000	16,180,411	—4,098,970
Norfolk Southern	907	3,510,282	1,359,440	5,186,947	964,529	1,084,074	75,677	2,332,933	320,497	4,679,511	90.21	507,436	173,941	333,303	—990,836
Northern Pacific	6,556	70,445,089	15,812,364	93,841,867	13,140,708	14,843,349	722,762	33,763,347	1,662,757	64,546,676	69.52	28,295,191	6,152,629	22,137,274	—4,914,153
Northwestern Pacific	507	2,790,039	1,961,742	5,268,093	739,665	625,641	54,016	1,979,951	116,420	3,533,530	67.07	1,734,563	241,517	1,443,013	85,807
Oregon Short Line	2,323	23,540,721	5,426,547	31,089,992	4,126,305	4,598,221	232,709	9,012,469	922,663	19,437,959	62.52	11,652,033	1,735,294	9,913,709	—1,457,411
Oregon-Washington R. R. & Nav. Co.	2,066	16,037,403	5,735,071	23,422,333	3,633,789	3,470,543	346,761	9,191,688	918,848	17,976,373	75.14	5,945,952	1,358,126	4,585,583	—1,029,929
Panhandle & Santa Fe	738	3,969,947	1,169,425	5,397,403	998,613	1,591,117	43,870	2,035,501	162,314	4,799,529	88.92	597,873	199,022	397,315	—2,026,147
Pennsylvania Company	1,754	63,979,731	14,360,792	86,575,711	13,300,720	22,734,862	889,825	38,514,766	1,822,847	77,843,193	89.91	8,732,518	3,210,761	5,520,974	—7,091,415
Pennsylvania Railroad	5,342	215,916,088	87,201,986	333,169,367	44,999,021	89,633,916	2,706,793	150,240,621	7,399,114	299,733,146	89.96	33,436,221	9,631,829	23,778,334	—28,806,047
Peoria & Pekin Union	19	248,175	66,716	1,183,792	146,745	273,177	321	869,468	42,837	1,332,548	112.56	—148,756	104,269	—253,025	—283,976
Pere Marquette	2,239	20,154,804	3,800,536	26,265,439	5,494,057	5,655,517	322,913	11,095,378	683,719	21,300,793	81.09	4,964,646	637,838	4,325,412	—833,735
Philadelphia & Reading	1,126	60,722,798	7,634,447	73,140,301	6,465,741	17,538,390	454,376	33,593,480	1,281,226	59,487,398	81.33	13,652,903	1,500,256	12,152,371	—5,658,801
Pittsburgh & Lake Erie	224	26,197,510	2,074,268	30,230,269	4,029,421	6,166,301	167,659	9,212,639	456,903	20,077,967	66.41	10,152,301	812,900	9,339,392	2,050,872
Pittsburgh & Shawmut R. R. Co.	94	1,170,999	41,860	1,227,382	300,146	340,115	12,322	482,464	35,478	1,170,525	95.36	56,857	16,109	40,748	—192,599
Pittsburgh, Shawmut & Northern	204	1,034,956	57,668	1,125,208	315,747	594,082	13,384	596,031	75,579	1,594,823	141.73	—469,615	19,954	—489,568	—307,879
Pittsburgh & West Virginia	63	1,481,532	101,470	1,722,803	450,631	463,346	14,061	650,212	75,578	1,748,939	101.51	—28,135	135,020	—181,164	—513,543
Pittsburgh, Cincinnati, Chic. & St. Louis	2,393	54,563,767	17,116,788	79,888,416	9,861,747	23,126,119	1,010,313	34,902,694	1,868,020	71,447,224	89.43	8,441,192	2,619,175	5,819,103	—8,019,012
Port Reading	21	1,713,134	.....	2,342,016	219,339	264,559	393	1,123,606	13,160	1,621,043	69.21	720,973	107,667	613,307	108,278
Richmond, Fredericksburg & Potomac	87	2,595,967	3,215,918	6,422,496	331,760	731,259	45,250	2,175,372	111,114	3,449,274	53.70	2,973,223	149,553	2,823,151	1,073,601
Rutland	415	2,452,519	1,044,354	4,199,930	699,307	954,702	112,889	2,104,432	110,284	3,984,362	94.86	215,568	196,166	19,375	—765,777
St. Joseph & Grand Island	258	1,910,613	341,828	2,405,054	477,404	432,025	24,012	1,254,627	95,429	2,289,361	95.17	115,693	94,672	20,978	124,223
St. Louis, Brownsville & Mexico	548	2,657,152	1,086,621	4,041,504	607,891	745,225	64,370	1,179,276	141,594	2,738,289	67.75	1,303,215	109,389	1,192,805	—51,782
St. Louis Merchants Bridge Terminal	9	.....	4,721	3,370,304	455,468	489,662	8,925	2,169,290	67,592	3,190,937	94.67	179,367	92,856	86,142	—628,054
St. Louis-San Francisco	4,761	41,390,718	18,589,633	63,778,876	9,112,229	14,457,968	346,018	24,474,090	1,740,932	50,243,836	78.77	13,535,039	2,454,106	11,060,754	—5,182,082
St. Louis, San Francisco & Texas	134	1,061,254	142,972	1,272,409	178,307	238,512	20,274	579,916	67,547	1,084,556	85.23	187,853	18,153	169,456	75,643
St. Louis Southwestern	968	8,963,294	2,242,380	11,716,401	1,393,568	2,458,578	242,988	3,434,988	370,606	7,922,088	67.61	3,794,313	467,780	3,324,904	—977,718
St. Louis Southwestern of Texas	814	3,995,435	1,647,651	6,037,564	1,329,281	1,761,291	114,076	2,774,826	252,538	6,231,253	103.21	—193,689	214,819	—409,046	—990,444

§ Does not file.

REVENUES AND EXPENSES OF RAILWAYS

ELEVEN MONTHS OF CALENDAR YEAR 1918—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Equipment.	Traffic.	Transportation.	Genecral.	Total.	Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
San Antonio & Aransas Pass	3,583	$2,603,190	$1,113,311	$4,000,350	$666,633	$1,309,801	$70,850	$1,920,007	$183,639	$4,048,237	101.19	—$47,887	$161,416	—$210,991	—$588,040
Seaboard	3,561	20,271,786	11,933,920	35,313,321	4,592,295	8,081,453	713,831	15,216,243	972,533	29,806,279	84.41	5,507,642	1,342,541	4,156,003	—2,541,945
South Buffalo Ry. Co.	35	532,764	.....	1,437,511	162,899	178,123	3,652	765,185	19,523	1,129,383	78.56	308,129	55,400	292,729	52,618
Southern	6,982	69,445,586	37,277,145	115,846,924	12,529,774	22,445,310	1,391,459	44,121,089	2,379,807	83,537,618	72.11	32,309,306	3,426,247	28,843,955	4,835,568
Southern in Mississippi	278	767,233	450,322	1,323,951	290,238	162,550	25,346	680,134	47,314	1,205,582	91.05	118,370	99,000	19,253	—129,876
Southern Pacific	7,049	92,505,560	35,850,175	139,986,982	16,407,138	24,308,830	1,365,788	54,139,181	2,867,446	101,368,144	72.41	38,618,837	6,486,680	32,091,462	—8,706,812
Spokane, International Ry. Co.	162	235,370	145,669	912,904	150,282	94,994	16,423	302,338	44,398	605,201	66.29	307,702	36,249	271,379	—30,455
Spokane, Portland & Seattle	554	5,425,669	1,820,638	7,768,437	1,039,872	900,159	61,555	2,357,710	205,012	4,605,135	59.28	3,163,302	750,806	2,411,944	—172,034
Staten Island Rapid Transit Co.	23	792,714	757,730	1,755,587	305,612	252,025	14,556	878,290	87,405	1,537,888	87.59	217,699	124,000	93,671	—118,019
Tennessee Central	293	1,770,710	870,327	2,766,718	594,160	580,261	27,879	1,146,909	76,972	2,426,200	87.69	340,518	73,076	267,089	—77,740
Terminal R. R. Ass'n of St. Louis	36	.....	36,116	3,567,267	631,176	543,698	9,274	1,634,264	52,044	2,901,336	81.33	665,931	363,841	302,001	—868,624
Texarkana & Ft. Smith	81	898,448	170,698	1,154,061	140,529	144,126	19,242	432,597	49,697	783,812	67.91	370,249	89,914	280,327	—131,592
Texas & New Orleans	469	4,561,275	1,696,942	6,818,626	845,773	1,898,672	65,553	2,382,306	135,624	5,505,306	80.74	1,313,327	239,753	1,071,129	—955,026
Texas & Pacific	1,946	15,961,069	6,684,613	24,241,738	3,281,493	4,457,231	281,506	10,441,563	710,138	19,355,161	79.84	4,886,577	983,690	3,897,162	—1,333,970
Toledo & Ohio Central	435	7,832,142	6,663,111	9,050,777	1,447,250	2,255,063	75,419	4,169,387	182,128	8,151,930	90.06	898,848	326,371	572,447	—1,031,860
Toledo, Peoria & Western	247	967,240	415,213	1,481,009	273,077	432,853	27,875	715,627	58,609	1,508,006	101.82	—26,996	101,254	—128,200	406,057
Toledo, St. Louis & Western	454	6,408,147	858,260	7,568,077	1,248,198	1,605,645	112,904	2,828,563	116,795	5,903,496	78.01	1,664,581	248,200	1,416,211	—150,114
Trinity & Brazos Valley	368	781,167	150,041	1,040,606	310,663	454,990	19,813	534,157	87,418	1,427,041	137.13	—386,435	67,474	—454,067	—268,385
Ulster & Delaware	128	501,160	266,774	950,582	162,792	169,000	14,442	531,816	48,032	93,208	98.06	19,374	50,600	—31,288	—194,042
Union Pacific	3,633	66,210,922	16,520,902	89,710,832	9,570,346	14,682,545	697,929	24,541,244	2,281,703	53,566,685	59.71	35,144,148	3,100,062	33,040,036	—200,295
Union R. R. of Penn	35	.....	.....	6,432,149	562,719	1,788,187	3,206	3,403,759	68,979	5,826,695	90.58	605,455	84,336	521,112	7,707,393
Utah Railway	98	1,275,410	6,456	1,289,140	164,499	162,220	1,861	246,968	61,469	637,017	49.41	652,123	36,825	615,298	.....
Vicksburg, Shreveport & Pacific	171	1,365,538	707,133	2,365,305	326,641	564,355	43,206	896,321	81,507	1,959,300	82.83	406,005	106,170	299,518	—284,117
Virginian	518	9,725,063	569,347	11,019,095	1,339,455	2,375,819	64,054	4,310,011	173,218	8,250,327	74.87	2,768,768	431,730	2,536,993	—1,597,554
Wabash	2,519	31,251,241	9,161,210	43,689,430	5,418,027	8,795,659	668,457	20,298,352	997,129	36,382,454	83.27	7,306,976	1,232,996	6,071,844	—3,923,139
Washington Southern	35	951,406	2,049,603	3,560,681	232,395	364,520	20,140	1,154,590	54,829	1,849,575	51.94	1,711,106	69,346	1,641,676	583,071
West Jersey & Seashore	35	3,099,248	60,924,438	9,808,432	2,113,661	1,772,248	85,356	4,762,784	215,810	9,004,618	91.80	803,813	450,947	349,715	—814,282
Western Maryland	707	11,960,678	921,568	13,656,724	2,494,450	4,310,195	219,099	6,540,571	368,045	14,067,579	103.00	—410,855	475,200	—886,055	—4,096,066
Western Pacific	1,011	8,405,705	1,306,549	10,194,320	1,771,074	1,415,910	172,412	3,217,045	236,983	6,953,117	68.33	3,221,203	497,315	2,722,151	—216,386
Western Ry. of Alabama	133	1,288,869	844,308	2,313,038	272,310	472,292	41,249	774,179	70,679	1,660,141	71.77	652,897	77,000	575,811	254,220
Wheeling & Lake Erie	571	11,146,337	434,265	12,640,717	1,899,920	2,925,513	77,914	5,068,293	280,946	10,276,713	81.29	2,364,004	589,217	1,774,187	—1,117,693
Yazoo & Mississippi Valley	1,382	15,370,263	3,851,754	20,078,207	2,736,776	4,181,328	172,434	7,319,398	507,632	14,884,810	74.13	5,193,598	689,043	4,501,945	167,426

Traffic News

Receipts of live stock at Kansas City in the calendar year 1918 amounted to 161,812 cars, as compared with 138,186 cars in 1917, an increase of 15 per cent. The total shipments from Kansas City in 1918 were 55,123 cars, as compared with 48,772 cars in 1917, an increase of 12 per cent.

Traffic Hearings on Sand and Gravel Rates

The central district freight traffic committee opened a hearing at the Hotel La Salle, Chicago, Thursday, on the proposed mileage scale rates for sand, gravel, stone and slag in territory east of the Illinois-Indiana state line, west of Pittsburgh and Buffalo and north of the Ohio river. There was an exceptionally large attendance, the feeling running high among shippers, who claim that the new scale will mean a heavy increase over the present rates and will thereby retard road building and other construction work, which is highly essential to prevent a serious unemployment problem. In the morning session the chairman of the meeting stated that the purpose of the scale was to replace the present hodge-podge of sand and gravel rates, with a scheme which will exact the same charge for the same service throughout the territory. In reply to an allegation that the scale meant a large increase in rates, he stated that the committee had applied the proposed scale and present rates to business on Pittsburgh, Chicago, Cincinnati and St. Louis for one month in 1916, when the sand and gravel movement was normal, and found that the application of the new scale meant a reduction in revenues rather than an increase.

Fibre Container Makers Organize New Body

At a meeting of manufacturers of corrugated and solid fibre containers, held in Chicago on January 16 and 17, an association, to be known as The Container Club, was formed. It will take over the activities of the Corrugated-Fibre Association and the Fibre Shipping Container Association, both of which have been disbanded.

At a meeting of the War Service Committee of the War Service Board, of the container industry, held in Atlantic City, N. J., on December 17, it was voted to disband the board on January 1 because it was organized only for the purpose of serving the government and the industry in its relations with the government for the period of the war. The discussion that ensued resulted in the organization of the Container Club. Among the purposes of the club, as outlined in its by-laws, are the development and maintenance of a proper standard of quality of fibre shipping cases and of the raw materials entering into their manufacture, co-operation with the carriers by a strict system of inspection with the object of eliminating the use of unsafe containers and those not complying with the railroad classification rules; co-operation with shippers in devising the most suitable containers for various commodities and the best means of packing and sealing them; the prosecution of research work to secure the standardization of fibre shipping cases and the materials from which they are made, and the further development of the uses of fibre containers with special attention to promoting their sale in foreign countries.

The main office of the club will be in the Transportation building, Chicago.

The following is a list of the officers: Geo. W. Gair, vice-president, the Robert Gair Company, Brooklyn, N. Y., president; Sidney Frohman, president the Hinde & Dauch Paper Company, Sandusky, Ohio, vice-president; J. P. Hummel, president the Hummel & Downing Company, Milwaukee, Wis., vice-president; G. H. Wood, president the River Raisin Paper Company, Monroe, Mich., vice-president; Frederick A. Norris, vice-president, the Thompson & Norris Company, Brooklyn, N. Y., vice-president.

The charter membership of the association includes 25 companies located in all parts of the country.

Commission and Court News

Court News

Jurisdiction of Actions for Freight Charges

Where a bill of lading for an interstate shipment required the owner or consignee to pay the freight, the Circuit Court of Appeals, Ninth Circuit, holds that an action by a connecting carrier to recover freight due is governed by the Carmack Amendment, and under the Judicial Code is within the jurisdiction of the federal District Court, regardless of the amount involved.—New York Central v. Mutual Orange Distributors, 251 Fed. 230. Decided May 6, 1918.

Void Contracts to Establish Stations

The Kansas Supreme Court holds that a contract made in consideration of the giving of subscription notes whereby a railroad company agrees permanently to establish and maintain on the subscriber's land a passenger and freight station, stockyards, side tracks, and other shipping facilities, and to refrain from ever establishing or maintaining similar structures or facilities within competing distance of the subscriber's land, is void as against public policy, even if the provision not to establish other stations were omitted.—Baird v. Salina Northern (Kan.) 173 Pac. 1069. Decided July 6, 1918.

Interpretation of Tariffs

In an action by a railroad company to recover balances due as freight for shipments of cattle, the Circuit Court of Appeals, Ninth Circuit, holds that in a case where no through rate or through route is authorized by the tariff between the two points of a shipment the rate which would be applicable would have to be made up by a combination of the rates published in the tariff sheets. In determining the rate to be charged, all parts of the tariff filed should be considered, and if a plain meaning can be gathered therefrom, effect should be given to it.—Portland Cattle Loan Co. v. Oregon Short Line, 251 Fed. 33. Decided May 6, 1918.

Delivery at Private Siding

The Supreme Court of the State of Washington holds that the fact that a railroad may put goods on a siding does not make it other than private within a bill of lading provision that the carrier shall incur no liability for goods received from or delivered on private sidings, except when attached to train, where such place of delivery was fixed by the bill, with the making of which the terminal carrier had nothing to do. Such a provision is reasonable and valid. Where, under a nonnegotiable bill of lading, property was delivered on a private siding, the terminal carrier had a right to act upon the basis that the shipper, who was also consignee, still held the bill of lading, and the property could be placed on the siding without receipt of the bill of lading and without notifying the consignee.—Branchi & Sons v. Montpelier & Wells River, 104 Atl. 144. Decided May 6, 1918.

Right to Bridge Road—Government War Work

A railroad sued two county boards to restrain interference with the construction of a bridge over a plank road, the bridge being a necessary link in a railroad duly laid out on both sides thereof. The county boards were in possession of the plank road. The right of the railroad to lay its track and to carry it across the plank road by an overhead bridge was absolute; and it was apparent that it would suffer an irreparable injury if the use of its road were delayed for want of a bridge. Even if it did not, the New Jersey Court of Chancery holds that the public necessity at the present time is paramount and should outweigh questions of private consideration; and the court should see to it that public work for the government, in its aid, is not hampered or impeded. Injunction was granted.—United New Jersey R. & C. Co. v. Freeholders of Hudson & Essex (N. J.) 104 Atl. 98. Decided May 23, 1918.

Excessive Damages

Where a plaintiff's husband was killed instantly, was 29 years old, and left no children, and was earning about $125 a month, with prospects of increased earnings, the Arkansas Supreme Court held a judgment for $22,500 excessive, and to be reversed unless remitted to $15,000.—St. Louis S. W. v. Owings (Ark.) 204 S. W. 1146.

A lineman 32 years old was riding on a gasoline car weighing about 400 lb. and carrying tools which weighed about 100 lb. The car was derailed and rolled over him. He received a Pott's fracture of the fibula, and sustained a breaking or tearing away of the ankle ligaments, injury to the soft structures, etc., subjecting him to pain. The Iowa Supreme Court holds that a verdict for him of $5,900 was excessive by $900.—Brier v. Rock Island (Iowa) 168 N. W. 339. Decided June 27, 1918.

Employers' Liability Act Decisions

The Kentucky Court of Appeals holds that an employee injured while on the tracks on his way to repair the dwelling house of the general manager was not at the time employed in interstate commerce within the act.—Walden v. Cumberland (Ky.), 203 S. W., 854. Decided June 11, 1918.

The Kentucky Court of Appeals holds that a signal maintainer, who was furnished by his employer, an interstate carrier, with a tricycle to make his rounds, was engaged in interstate commerce when returning to his home after leaving the last signal.—L. & N. v. Mullins' Admr. (Ky.), 203 S. W., 1058. Decided June 14, 1918.

Where the employee of an interstate common carrier was injured while engaged in lifting rails from the ground and placing them on a car to be taken to another point on the line, and there used in maintaining or repairing the track, the Kentucky Court of Appeals holds that the question of whether he was engaged in interstate commerce when injured should have been submitted to the jury.—Probus v. Illinois Central (Ky.), 203 S. W., 862. Decided June 7, 1918.

Use of Waste Materials from Manufacturing Plants

The federal District Court for the Western District of Pennsylvania holds that it is not a defense to a suit by a railroad company to recover its established rates for transportation of slag, ashes and other refuse delivered on private sidings "for wasting for the plant," that some of the material may have been used by the company for ballast. The court said: "The service for which the plaintiff was entitled to recover the rates charged was the transportation of the materials away from the several plants of the defendants, so that they would be rid of them. What use the plaintiff would make of the materials after it had rid the plants of the defendant of them is, under the tariff, wholly immaterial. * * * Even if there should be a disposition on the part of the court to hold that the plaintiff is not entitled to the full rate per car for refuse used by it for ballast or fill along its line, the court could not do so, because it would then be assuming a control over the rates which is not within our jurisdiction." Rates of a railroad company which conform to its published tariffs cannot be contested in the courts as unreasonable.—Baltimore & Ohio v. Carnegie Steel Co., 251 Fed. 682. Decided January 31, 1918.

Keeping a Look-Out When Making Yard Movements

Whether it is negligence or not for the servants of a railroad company to run an engine backwards or push cars ahead of an engine without stationing some one on the tender or foremost car to signal its approach to a person who may be on the track, is a question which is controlled by the circumstances under which the engine or train is operated. Sometimes it has been held negligence per se, but in most cases it has been held a question of fact for the jury. When, as in the present case, a train is being moved over a bridge

where it is manifestly dangerous for people to walk, and proper signs are placed so as to warn people of the danger of trespassing thereon, and only active persons who court danger attempt to cross the bridge, it would not be expected that a lookout would be stationed to prevent accidents. A night watchman was found dead on the track on a bridge, having evidently been run over by a train. If he stopped on the bridge for any purpose, there was no evidence that he could be observed by an outlook on the car immediately in front of the engine, and there was positive evidence that he was not on the track where he could be seen from the approaching train. The Iowa Supreme Court held the evidence would not support a finding that any negligence of the railroad was the proximate cause of his injury, and judgment for the plaintiff was reversed.—Sippel v. Missouri Pacific (Neb.) 168 N. W. 356. Decided June 15, 1918.

Interstate Commerce—Tariffs

As a joint rate cannot be made between an interstate railroad company and a carrier by water transporting property between the United States and a nonadjacent foreign country; the Circuit Court of Appeals, Ninth Circuit, holds that, in view of rule 71 of the Interstate Commerce Commission, provisions in the tariffs of a railroad company filed in accordance with the Act to Regulate Commerce, §6, for absorption of switching charges and state tolls on traffic destined to or originating in foreign countries, apply only to state tolls on land carriage, and not to tolls and charges imposed by the water carrier.

It is also held that while an interstate railroad company is subject to the act to regulate commerce, and the provisions of the tariffs filed pursuant to that section must be strictly observed, yet the Interstate Commerce Commission is without jurisdiction over ocean carriage of export and import traffic destined to or coming from nonadjacent foreign countries. Pacific Mail S. S. Co. v. Western Pacific, 251 Fed. 218. Decided May 6, 1918.

United States Supreme Court

Validity of Provision of Notice of Claim

In an action for damages in transit to cattle carried from California to Phoenix, Arizona, one ground of defense was non-compliance with a provision in the contract for notice of loss or damage within ten days after the unloading of the animals. The shipper alleged actual knowledge at the time of unloading by the railroad of injuries sustained by the cattle in transit, and subsequent continuous negotiations between the shipper and the railroad's agents for more than three months relative to damages sustained. The trial court refused to direct a verdict for the defendant and charged the jury that if they believed the defendant or its agents or employees did know that five or more of the cattle died while in transit, and that the defendant was negotiating with the plaintiff for a settlement of his claims, and that the defendant knew the cattle had been injured as alleged in the plaintiff's complaint, the plaintiff was released from giving notice within ten days as required by the contract. The Circuit Court of Appeals, Ninth Circuit, affirmed a judgment entered upon verdict for the shipper, 233 Fed. 956.

The Supreme Court of the United States, considering the principles and conclusions approved by its opinions in St. Louis, I. M. & So. v. Starbird, 243 U. S. 592 and Erie v. Stone, 244 U. S. 332 (announced since the judgment below), is of opinion that upon the facts disclosed the stipulation between the parties as to notice in writing within ten days of any claim for damages was valid. The court also thinks those opinions make it clear that the circumstances relied upon by the shipper were inadequate to show a waiver by the carrier of written notice as required by the contract. It holds that the trial court's instruction was erroneous, and that the railroad's request for a directed verdict should have been granted. Judgment for the plaintiff is, therefore, reversed.—Opinion by U. S. Justice McReynolds, U. S. Justice McKenna and U. S. Justice Clarke dissent.—Southern Pacific v. Stewart. Decided January 13, 1919.

Foreign Railway News

Coal Shortage in Germany Is Acute

The coal shortage throughout Germany is so threatening, says an Associated Press despatch, that for the moment all other questions are overshadowed.

At present, according to the despatch, the daily production in the Ruhr district is fewer than 10,000 tons, against 24,000 during the war and 33,000 in peace times. Upper Silesia is producing 2,000 carloads, as against 11,000 in war times and 14,000 under peace conditions. The reserves are virtually exhausted.

The situation is aggravated further by lack of enough railway rolling stock to transport even the small quantities mined. Of 2,100 cars required in the Ruhr district on Saturday only 1,000 could be obtained. The Minister of Railways has had the greatest difficulty in securing locomotives for the transport of coal from Silesia to Berlin, getting only a fraction of the total needed. In addition to the depletion of the supply of rolling stock through deliveries to the Allies the situation has been further complicated by labor conditions.

Siberian Railroad Loses $40,000,000 a Month

The Trans-Siberian Railroad is losing $40,000,000 a month, according to Ivan Mikhailoff, Minister of Finance of the All-Russian Government at Omsk, in discussing the Government's program for financial rehabilitation with the Associated Press recently.

M. Mikhailoff strongly supported the government's decision to accept the allied proposal for the management of the Trans-Siberian Railway, saying that if sufficient power is put into the work results will be sure to follow.

He pointed out that the reorganization of the railway would be immediately beneficial by increasing custom receipts. He said that Russia would furnish money to meet the running expenses of the work, but the plans of John F. Stevens, head of the Railroad Commission, will entail the purchase abroad of a large amount of material. To make payments on such purchases, Russia, he said, would request a loan from allied nations.

He said that the monthly expenditures jumped from $78,500,000 in August to $200,000,000 in December. The receipts in December were $39,500,000, against $10,000,000 in August. Deficiencies are being met, he said, by the issuance of treasury bonds. The budget for 1919 calls for $300,000,000 monthly to meet the expenses attendant upon enlarging the territory under control. He said that $50,000,000 would be appropriated for railroad work.

In the opinion of people at Omsk, the Associated Press despatch says, the hand of the government has been strengthened by the acceptance of the Foreign Ministry by Sergius Sazonof and the final conclusion of the agreement between the United States and Japan by which Mr. Stevens became chairman of the technical commission in charge of the rehabilitation of the Trans-Siberian Railway.

French Railroad Expansion in Africa

A French committee for the development of African railroads has recently approved a program for the construction of 18,000 miles of track during the next 15 years, says an item in the Wall Street Journal, quoted from l'Economiste Européen.

It is proposed first to extend a certain number of existing lines in Algiers and Tunis toward the highland and build rail communications in Morocco, as proposed by General Lyautey. This latter project has been under consideration by a committee of the French Chamber for the last 18 months.

The next step proposed is to connect northern Africa with the southwest coast on the one hand and with equatorial Africa on the other hand. This will be accomplished by a

trans-Saharien road reaching the Niger at Bourem and Lake Chad via Nguigni-Massenya.

The important projects, however, comprise a rail route between Marrakech and Dakar on the African west coast which will facilitate communication with South America, one between Abechert and El Obêid which will connect with the Egyptian Soudan system, one between Zemie and Fort Florence which will touch the Cape to Cairo railway and one between Zemie and Stanleyville in the Belgian Congo. These lines will be connected with branch lines, particularly in the French territory of the African west coast and in Central Africa. The mileage projected for the former is 7,000 and for the latter 6,000 miles. It will tap the rich regions of the Niger and of Lake Chad and provision Europe and especially France with cereals, wool, cotton, oil products, skins, meat, minerals, sugar, coffee, wood, etc., of which France had to import about $1,200,000,000 in 1914. The cost of this rail program has been estimated at $800,000,000.

Railway Notes from China

Special Correspondence from Peking (Delayed)

Considerable uneasiness has been caused by persistent rumors that the net earnings of the Peking-Mukden line had been mortgaged to Japanese interests as security for a political loan. The rumor also had it that the loan would probably be large enough to redeem the present British loan and hence would oust the British management. The net earnings of this line are annually about $8,000,000, hence the property is worth acquiring.

Three Japanese railway projects indicate further development recently. The most important is the line from Tsinan to Shunteh. This is the old German concession in connection with the line from Tsinan to Tsingtao. The Japanese having taken over the latter, now elect to exercise the former. It appears, however, that this line is not fully satisfactory to Japanese interests. While it would divert a very considerable agricultural traffic to the port of Tsingtao, some time would be required to develop the route. The promoters now demand permission to swing the line further south to a connection with the Takou line. The latter line already has a coal traffic sufficient to pay all charges upon its own line, and if most of this could be captured by the line from Tsinan—as it probably could—the new line would pay from the start. All the business picked up locally would be "velvet" and a tremendous tonnage would be turned over at Tsinan to the Tsingtao line, which now is in need of something of the sort. However, the British have the right to build all extensions to the Takou line, and, hence, no decision has been reached, so far as is known.

From Kirin (in Manchuria) to the coast is another line for which an agreement has been signed, so it is reported. The Kirin Chanchun line is already under Japanese operation. Its extension is merely a solidifying of Japanese control over Manchuria. The Ta Hsing company which owns silver mines in the vicinity has petitioned for permission to build a light railway to be known as the Chientao-Tientu Railway from its mines to a junction with the new line.

Japanese interests are attempting to secure an agreement to build a line from Nanchang to Foochow on the Fukien coast, opposite Formosa. The Nanchang Kiukiang line, a private railway, is in financial difficulties, and the proposal is to take over this line and its difficulties and make a through line from the Yang Tse river to the coast via this route. Chinese officials who grant this concession will do so reluctantly for the aggressions of Japanese in Fukien have already been the subject of violent protest. The British also are bound to oppose, for it would constitute an invasion of the British sphere of influence in the Yang Tse valley.

Railway Notes From South Africa

JOHANNESBURG.

Sir William Hoy's latest report on the working of the South African Railways covers the period of fifteen months ended on March 31, last, and constitutes a sort of economic survey of South Africa. As usual it is a valuable and interesting document for the general manager not only deals with railway and harbor activities, but follows the custom of surveying the industrial and agricultural situation generally. In his introductory remarks the general manager points out that in future the report of his department will be published for the financial year (ending March 31) instead of for the calendar year as has been the case hitherto.

The figures of primary importance for the twelve months ended March 31, 1918, the report goes on, are as follows:

Total capital expenditures on March 31, 1918, £93,431,626; total earnings, £14,315,860; gross working expenditure, including depreciation, relaying and strengthening, £10,817,639; surplus of earnings over gross working expenditure, £3,216,525; net loss (after including miscellaneous receipts and charges) carried to revenue distribution account, £181,752; passengers carried, 51,178,883; goods, minerals and coal, 13,936,502 tons; total open mileage of South African Railway lines, 9,514 miles; total mileage, 11,450.

The magnitude of the enterprise which the general manager controls is shown by the fact that the combined staff numbered on March 31, last, 72,477 individuals, of whom 35,259 were whites.

The period covered by this report has been remarkable for heavy crops and unprecedented prices for agricultural products. Local industries and manufactures have grown in number and variety and developed in production. The steady advance in prices, the continued shortage of freight, and the increasing difficulty of obtaining commodities hitherto imported have stimulated local production and led to a gratifying expansion in every direction. Considerable interest has also been created in, and in a small way steps have been taken to exploit the immense field for enterprise in the working up of raw materials and the manufacture of by-products hitherto almost entirely neglected in South Africa. Referring to the influence of the war on South African conditions, Sir William Hoy says: "In every way the appalling effects and ever widening influences of the war are becoming intimately borne in upon the people of South Africa. Neither agriculturally, commercially, nor industrially has South Africa had reason to complain, and though minor and temporary inconveniences have inevitably resulted from war conditions, the union has not only enjoyed complete freedom from anxiety with respect to the prime necessities of life, but may be said to have participated in a term of unexampled prosperity. Prices have been high, but on the whole, money has been plentiful, and trade brisk. War expenditures on a considerable scale still augment the purchasing power of the community and while it is perhaps adventurous to speculate as to the future, in view of the many accepted theories already overthrown, guard should be taken against being lulled into a false security."

RECORD FIGURES.

A steady and gratifying progress is reflected by the revenue and traffic returns, which show record figures under all traffic, in which there has been a phenomenal increase, notwithstanding the withdrawal of excursion and concession tickets as from October 2, 1917; the number of passenger journeys increased by four and a quarter millions, and revenue from passengers by £318,210. Revenues from goods and mineral traffic increased by £217,283, a highly gratifying result when it is remembered that during the past fifteen months restrictions on imports have been imposed with increasing severity, that a larger proportion of the available shipping has been required in the war zone and that in consequence there has been a decrease of 67,535 tons, or 21 per cent in the volume of high-rated commercial seaborne traffic carried to the competitive area. Increased local traffic has not only compensated for this loss, but has expanded to such an extent as to reflect an increase of 248,977 tons in the gross tonnage of goods traffic handled as compared with the previous twelve months. The total revenue increased by £729,382 compared with the corresponding twelve months of the previous year, an increase of 5.37 per cent. In comparison with 1909—the year prior to union—railway earnings have increased by £3,860,041, or 37 per cent, passenger traffic by 22,987,748 passenger journeys or 81.6 per cent; goods and mineral traffic by 2,719,742 tons, or 52 per cent; and the volume of revenue earning goods, mineral and coal traffic by 5,001,036 tons, or 56 per cent.

Equipment and Supplies

Locomotive Deliveries

The following new locomotives were shipped during the week ended January 18:

Works	Road	Number	Type
American	*Oregon Short Line	4	USRA Mikado
	Boston & Albany	5	USRA St. Fe
	Ter. R. R. of St. L.	4	USRA 6-w. Sw.
	*Dul., Miss. & Northn.	7	USRA St. Fe
	Penn. L. W.	1	USRA St. Fe
	Mobile & Ohio	2	USRA 6-w. Sw.
	Pittsb. & W. Va.	2	USRA 6-w. Sw.
	Chesap. & Ohio	4	USRA Mallet
	Chic. & N. W.	1	USRA Mikado
	Total	30	
Baldwin	Litch. & Mad.	2	Consol.
	Sou. R. R.	1	Mallet
	Penn. R. R.	2	Mikado
	B. & O.	8	USRA Mikado
	C. B. & Q.	1	Mikado
	Phila. & R.	1	Consol.
	Atch., Top. & St. Fe	1	Mikado
	Total	16	
	Grand total	46	

*Four U. S. R. A. Mikados, constructed for the Oregon Short Line were shipped to Cleveland, Ohio, and seven U. S. R. A. Santa Fe constructed for the Duluth, Massabe & Northern were shipped to Columbus, Ohio, to be stored as parts of emergency pools.

Freight Cars

THE CANADIAN NATIONAL RAILWAYS have ordered 750 box cars, 300 general service cars, and 250 ballast cars from the National Steel Car Company; 500 stock cars and 150 refrigerator cars from the Canadian Car & Foundry Company; and 500 flat and 550 general service cars from the Eastern Car Company, and 50 colonist cars from the Pullman Company, and 100 colonist and 30 baggage cars from the Canadian Car & Foundry Company.

The Disposition of Surplus Government Material

Announcement was made in Washington Wednesday giving the details of the plan of organization of the Office of Director of Sales of the War Department as follows:

Under the director of sales, C. W. Hare, is an assistant, E. C. Morse, who serves as chairman of the Board of Sales Review comprising the following members besides Mr. Morse: Lt. Col. A. LeMar, Maj. W. M. Crunden, Col. Fred Glover, L. H. Hartman, G. F. Woods, Capt. A. L Mercer, Capt. T. S. Schultz. Each of these members of the board is a division sales manager with the exception of Capt. Schultz, who is legal member on the board.

The announcement gives the names of seven divisions, the first of which, headed by Colonel LaMar, will handle machine tools, including all metal and woodworking tools, railway equipment, steam shovels, locomotive cranes, gantry cranes, hand tools, forging equipment, iron and structural workers' power tools and machinery.

A meeting was held in Cleveland, Ohio, on January 22 to discuss with the crane manufacturers the surplus crane situation. The meeting was attended by Lt. Col. LaMar, head of the machine tool division, by Maj. W. W. Houston, representing the director general Military Railways, and by representatives of the crane manufacturers. Colonel LaMar suggested to the latter the adoption of the same agreement as had been made recently with the machine tool builders.

The crane manufacturers expressed the belief that an effort should be made to induce the railroad administration, the navy and other government departments to take over as many of the government-owned surplus cranes as can be used before any effort is made to induce the manufacturers to take the cranes back.

After considerable discussion, they decided not to approve or disapprove, at this time, the government proposition as adopted by the machine tool builders.

manufacturers for consideration, is as follows:

The list of the cranes, which was placed before the crane

24 9-ton cranes, type "29," 8-wheel, 40-ft. boom (9 equipped with French draft rigging and 16 M. C. B.), manufactured by The Osgood Company; price paid $12,400.

47 15-ton cranes, type "B," 8-wheel, 48-ft. boom, M. C. B. standard appliances, price paid $18,250; 14 of above to be equipped with magnet and generator and single sheave block, price paid $19,900; manufactured by Brown Hoist Company.

10 15-ton cranes, 8-wheel, 45-ft. boom, M. C. B. standard appliances, manufactured by Bucyrus Company; price paid $20,680.

2 15-ton cranes, 8-wheel, 50-ft. boom, French draft rigging, manufactured by Link Belt Company; price paid $18,566.

1 15-ton crane, 8-wheel, 48-ft. boom, French draft rigging, manufactured by Brown Hoist Company; price paid $17,075.

3 15-ton cranes, 8-wheel, 45-ft. boom, M. C. B. standard appliances, manufactured by Ohio Locomotive Crane Company; price paid $19,800.

5 15-ton cranes, 8-wheel, 40-ft. boom, French draft rigging, manufactured by Orton & Steinbrenner; price paid $15,566.

10 15-ton cranes, type "E," 40-ft. boom, M. C. B. standard appliances, 7½-kw. generator sets, manufactured by Industrial; price paid $21,453.

34 15-ton cranes, type "E," 40-ft. boom (12 to have M. C. B. standard appliances and 22 to have French draft rigging), manufactured by Industrial; price paid $19,870.

2 20-ton cranes, type "G," 8-wheel, 40-ft. boom, French draft rigging, manufactured by Industrial; price paid $22,402.

4 20-ton cranes, type "G," 8-wheel, 50-ft. boom, French draft rigging, manufactured by Industrial; price paid $21,730.

3 15-ton cranes, No. 8, 8-wheel, 50-ft. boom, French draft rigging, manufactured by Browning; price paid $19,415.

1 20-ton crane, No. 8, 8-wheel, 46-ft. boom, French draft rigging, magnet and generator; price paid $22,135.

1 20-ton crane, No. 8, 8-wheel, 50-ft. boom, French draft rigging; price paid $18,985.

5 20-ton cranes, 8-wheel, 50-ft. boom, M. C. B. standard appliances, manufactured by Joliet Bridge & Iron Company; price paid $21,000.

2 20-ton cranes, 8-wheel, 50-ft. boom, French draft rigging, manufactured by Browning; price paid $19,080 and $19,420.

7 25-ton cranes, type "H," 8-wheel, 50-ft. boom, French draft rigging, manufactured by Industrial; price paid $24,718.

8 25-ton cranes, type "H," 8-wheel, 45-ft. boom, pile driver attachment (4 equipped French draft rigging and 4 with M. C. B. standard appliances), manufactured by Industrial; price $28,012.

3 30-ton cranes, model "F," 8-wheel, 50-ft. boom, M. C. B. standard appliances, sister hocks, manufactured by Ohio Locomotive Crane Company; price paid $25,700.

2 35-ton cranes, type "L," 8-wheel, 40-ft. boom, French draft rigging, wrecking tools with spare parts, manufactured by Industrial; price paid $27,240.

9 35-ton cranes, type "L," 8-wheel, 46-ft. boom, magnets and generators, outriggers (2 equipped with French draft rigging and 7 with M. C. B. standard appliances), manufactured by Industrial; price paid $34,132.

3 15-ton cranes, type model "C," M. C. B. standard 15-ton capacity, 8-wheel, 45-ft. boom, manufactured by Ohio Locomotive Crane Company; price paid $19,800.

18 50-ton wrecking cranes, type "P," M. C. B. coupler and trucks, pump and fire hose lighting equipment (17 are without booms and can be equipped with long booms for erecting purposes, 3 equipped with curved boom), manufactured by Industrial; price paid $32,865.

9 15-ton cranes, 2.4 M. (7 ft. 10½ in.) gage, hinge of boom 17 ft. above track, 48-ft. 3½-in. boom, self-propelling, double drum, manufactured by Variety Iron; price paid $20,300.

15 10-ton cranes 2.4 M. (7 ft. 10½ in.) gage, hinge of boom 17 ft. above track, 48-ft. boom, self-propelling, double drums, manufactured by Brown Hoist Company; price paid $16,884.

6 5-ton cranes, 2-boom, electric cargo unloaders, 65-ft. booms, span of gantry 44 ft. center to center of rails, operated by 3-drum electric hoist, manufactured by Clyde Iron Works; price paid $30,100.

The tentative agreement between the government and the machine tool builders, which the crane manufacturers were asked to consider, is as follows:

"1st. The inventory of all machine tools and equipment which is being made will be expedited to the greatest possible extent.

"2nd. As soon as it is known that a quantity of machine tools is available for disposal, the manufacturers of these tools will be given an opportunity to purchase them at a price and on terms of settlement which will be satisfactory to all parties concerned.

"3d. In case it is impossible for the manufacturer to purchase his product outright, an effort will be made to arrange for the marketing of the product in an equitable manner, securing for the government and the manufacturer alike the best possible terms.

"4th. In case both these methods of disposition fail, the material will be offered for sale to the general public in a manner prescribed by law.

"In the settlement of plant contracts which involve the sale of large groups of various kinds of tools and equipment, an effort will be made to prevent the sale for resale of any equipment, as it is realized that great injury could be done by indiscriminate sales of this character."

Supply Trade News

Major O. C. F. Randolph, who was discharged from the United States Army Engineering Corps December 13, of last year, has taken charge of sale of buildings to railways for the H. K. Ferguson Company, of Cleveland. Major Randolph is a graduate of the University of Illinois, and since leaving college has been in the bridge department of the Michigan Central and with the Timken Detroit Axle Company as construction engineer. He was also for a while the construction superintendent for the Austin Company, and left them to join the army in July, 1917, as second lieutenant in the 16th Railway Engineers. In France he was in charge of important building work on railroad and hospital construction, and was in this country organizing a sapper regiment at the time the armistice was signed.

High Honor Conferred Upon Dr. J. A. L. Waddell

The highest honor in the entire world that can fall to the lot of any scientific man has just been conferred upon an American engineer, when on December 17 at Paris *L'Institut de France* elected Dr. J. A. L. Waddell, consulting engineer of New York and Kansas City, a Corresponding Member in the *Academie des Sciences.* Such membership is the most highly coveted distinction among the scientists of Europe, for the organization is both old and exceedingly select.

Dr. J. A. L. Waddell

L'Institut de France is composed of five academies, the principal one of which is the *Academie des Sciences.* That organization is restricted to a full membership of 66, all of whom must be citizens of France; and in addition there are 116 corresponding members scattered all over the world.

The *Academie* is divided into two groups—Mathematical Sciences and Physical Sciences. The former is subdivided into five sections, viz., those of Geometry, Mechanics, Astronomy, Geography and Navigation, and General Physics; and the latter into six sections, viz., those of Chemistry, Mineralogy, Botany, Rural Economy, Anatomy and Zoology, and Medicine and Surgery. Each of these eleven sections, excepting that of Astronomy which has sixteen, is allowed ten corresponding members, who may be residents of France or of any foreign country, so that a scientific specialist, however great his renown, must await not merely a vacancy in the *Academie,* but one in the particular section to which he belongs. The full membership of 66 is equally divided between the eleven sections. By this means an equal balance is always maintained, and there can be no undue preponderance of any single scientific branch, or of any group of such branches.

For a year past there has been a vacancy in the list of corresponding members in the Mechanical Section, owing to the death of General Zaboudski of Russia, who was assassinated during an uprising of the populace at Petrograd. After considering the matter for several months, the *Academie* finally chose Dr. Waddell to fill the vacancy, basing their selection upon the value to practical science of his numerous books, papers, and addresses on both the theory and the practice of engineering, as well as upon his contributions to the development of technical education. One of his books was translated into French, and was published some three years ago by the French Government.

The *Academie des Sciences* was inaugurated in 1795; and during the succeeding 123 years there have been only 18 corresponding members chosen from the United States, Dr. Waddell making the nineteenth. Of these 18, three are still living, viz., the astronomers Dr. Edward Charles Pickering of Harvard University and Dr. George Ellery Hale of Washington, D. C., and the geographer, Dr. William Morris Davis of Cambridge, Mass.

Duntley-Dayton Company Organized

On January 1 the Duntley-Dayton Company took over the entire output of the Dayton Pneumatic Tool Company, of Dayton, Ohio, and announced its entry into the pneumatic tool field. W. O. Duntley, former president of the Chicago Pneumatic Tool Company, is president of the new concern and his son, Capt. C. A. Duntley, is vice-president. Capt. Duntley has not yet been relieved of his command in the 27th U. S. Field Artillery. The Dayton line of pneumatic tools has been on the market for many years. A new plant, equipped with modern machinery, has just been completed to take care of the business of the company. In addition to handling the output of the Dayton Pneumatic Tool Company, the Duntley organization is putting out a complete line of portable electric drills and grinders, as well as a full line of accessories, such as hose and hose couplings, rivet sets and chisel blanks. W. O. Duntley is one of the pioneers in the pneumatic tool business and has been closely connected with the industry for the past 25 years. He has a number of pneumatic and electric tool inventions to his credit, the Duntley electric drill being, perhaps, the most widely known. The offices of the Duntley-Dayton Company are located in the Westminster building, Chicago; the eastern offices are at 295 Fifth avenue, New York, and the Philadelphia branch in the Commercial Trust building.

W. O. Duntley

Trade Publications

MALLET ARTICULATED LOCOMOTIVES.—Record No. 91, published by the Baldwin Locomotive Works, Philadelphia, Pa., is devoted to a non-technical description of Mallet articulated locomotives, illustrated with two sectional drawings. Instructions are given for the proper handling of these locomotives, as well as formulas for calculating their tractive effort. The booklet also contains a number of illustrations of various locomotives of this type, both for foreign and domestic roads, with their dimensions and general data.

THE ROAD TO PEACE.—The book which the Lakewood Engineering Company, Cleveland, Ohio, has issued under this title is one of the most attractive and striking trade publications which has been issued by any company in the railway supply field for some time. The booklet, which is 13 in. by 11 in. in size, is a story of the use of light railway equipment behind the battle fronts in France. Its left hand pages are devoted to photographs showing the light railway sections in manufacture and transit, the actual laying of the track and its use by light railway equipment. The right hand pages tell the same story in words. Special attention is given to an important shipment in the St. Regis from Cleveland via the lakes and the Welland Canal, etc., to the other side. Tribute is paid to the engineer regiments which carried on the work. One of the most interesting pictures shows a group of the French "Blue Devils" who were invited to see the Lakewood plant where the light rail was made.

Financial and Construction

Railway Financial News

BALTIMORE & OHIO.—This company has arranged with Kuhn, Loeb & Co., Speyer & Co., and the War Finance Corporation for the extension until July 1, next, of $22,500,000 note obligations, which mature February 1. The bankers, it is understood, either hold or represent the bulk of the notes, while the War Finance Corporation will supply the funds necessary to pay off the unextended portion. When the notes matured on October 1, last, they were extended to February 1 by the road's bankers and the Railroad Administration, which drew upon the $500,000,000 revolving fund. This source of assistance has been practically exhausted for the time being, and as a result the War Finance Corporation was called upon to lend its aid. The maturing notes were originally divided into $10,500,000 three months' notes, $8,000,000 discount notes and $4,000,000 of bank loans. The present is the third renewal arrangement, the first having been made July 1, 1918.

CHICAGO, ROCK ISLAND & PACIFIC.—A settlement of this company's litigation with the Colorado & Southern growing out of contracts entered into in 1906 and 1914, whereby it agreed to purchase from the Colorado & Southern a half interest in the Trinity & Brazos Valley Railway, has been effected. The statement issued at the offices of the Rock Island Company says: "A settlement has been agreed upon whereby the Colorado & Southern will accept in cash 60 per cent of the amount due on the contract, which under the final decree in the Rock Island receivership would be payable in full in 6 per cent preferred stock at par, such as was paid to all other general creditors of the Rock Island. This will involve the payment of some $4,000,000, and the Rock Island will own outright a half interest in the Trinity & Brazos Valley Railway and will have a permanent outlet to the Gulf ports, which will be of great value in the event of the return of the roads to private operation. The total cost of the Trinity & Brazos Valley road is now in excess of $11,000,000."

In 1915 the receiver for the Rock Island disaffirmed the contracts and the Colorado & Southern brought suit for their enforcement.

COLORADO & SOUTHERN.—See Chicago, Rock Island & Pacific.

CUMBERLAND VALLEY.—See Pennsylvania Railroad.

PENNSYLVANIA RAILROAD.—The directors of this company and the Cumberland Valley Railroad took preliminary action on January 22 toward the complete absorption of the Cumberland Valley by the parent company. Stockholders of the Pennsylvania Railroad will be asked to ratify the merger at the annual meeting March 4.

TRINITY & BRAZOS VALLEY.—See Chicago, Rock Island & Pacific.

WAYCROSS & WESTERN.—Press despatches state that Judge Evans in the United States District Court at Macon, Ga., has confirmed an order under which that part of the Waycross & Western extending 16 miles from Cogdell to Milltown is to be junked. The stretch of railroad from Cogdell to Waycross is to be continued in operation for a period of five years under the terms of the order. The purchasers, the Empire Construction Company, paid $73,000 for the rail and ties when delivered at Waycross. The Waycross to Cogdell portion of the railroad is sold as a going concern for $120,000 and the purchasers agree to operate this part of the road for five years under a contract with the Knox Lumber Company.

Railway Construction

PENNSYLVANIA RAILROAD.—A contract has been given to E. H. Vare, Philadelphia, Pa., for building a new machine shop, and new stalls in the roundhouse at Todd's Cut, Wilmington, Del.

Railway Officers

Railroad Administration

Central

J. C. Turner has been appointed representative of the Division of Labor. Mr. Turner will be assigned to conduct investigations and to represent the Division of Labor of the Railroad Administration in other specific matters to which he may be assigned, affecting employees of the railroads under federal control.

G. H. Atkins and **C. B. Heinemann,** traffic assistants to the director of the Division of Public Service and Accounting, have been appointed assistants to the director of the new Division of Public Service, with office at Washington. The Short Line Section, of which **E. C. Niles** is manager, has also been transferred to the new Division of Public Service.

Brice Clagett, heretofore private secretary to the director general, has been appointed assistant to the director general. **H. A. Taylor,** heretofore assistant to the assistant director general, has been appointed general assistant to the director general. **G. H. Parker,** heretofore assistant to the assistant director general, has been appointed financial assistant to the director general.

E. H. DeGroot, Jr., assistant manager of the Car Service Section, has been appointed assistant director of the Division of Operation in charge of office matters, succeeding **J. H. Keefe,** who has resigned to return to the Atchison, Topeka & Santa Fe. **J. A. Somerville,** assistant manager of the Car Service Section, has resigned to return to his former position as general superintendent of transportation of the Missouri Pacific.

Regional

J. P. Walker has been appointed terminal manager of the Charleston Terminal Company and the North Charleston Terminal Company, at Charleston, S. C. In addition to his other duties the terminal manager will have jurisdiction over all departments on his terminals, reporting to the regional director.

Federal and General Managers

The jurisdiction of **Elisha Lee,** federal manager of the Pennsylvania Railroad, Eastern Lines, and associated lines, with headquarters at Philadelphia, Pa., has been extended over the Barnegat Railroad and the Philadelphia & Beach Haven Railroad.

J. E. Gorman, federal manager of the Rock Island Lines, Chicago, has had his authority extended over the Des Moines Terminal Railroad. **J. A. Wagner,** general manager of the Des Moines Union, the Des Moines Western and the Iowa Transfer, Des Moines, Iowa, has also had his jurisdiction extended over the Des Moines Terminal.

Operating

E. B. Russell has been appointed assistant to federal manager of the Baltimore & Ohio, Western Lines; the Dayton & Union Railroad, and the Dayton Union Railroad, with headquarters at Cincinnati, Ohio, vice **F. A. Deverell,** promoted.

W. B. Kilgore, road foreman of engines of the Baltimore & Ohio, Western Lines; the Dayton & Union Railroad, and the Dayton Union Railroad, with office at Dayton, Ohio, will also assume the duties of trainmaster, Wellston subdivision, vice **W. E. Duffey,** transferred.

F. P. Pelter, superintendent of the Memphis division of the Southern Railroad, with office at Memphis, Tenn., has been appointed general superintendent of the Georgia Southern & Florida; the Hawkinsville & Florida Southern, and the St.

Johns River Terminal, with office at Macon, Ga., vice **W. F. Kaderly,** promoted.

O. K. Cameron, superintendent of the Mobile division of the Southern Railroad, with office at Selma, Ala., has been appointed superintendent of the Memphis division, with office at Memphis, Tenn., vice **F. P. Pelter,** promoted, and **M. E. Madden,** trainmaster, with office at Macon, Ga., has been appointed superintendent of the Mobile division, with headquarters at Selma, Ala., vice Mr. Cameron.

John Madden Egan, whose promotion to general superintendent, Southern lines, of the Illinois Central and the Chicago, Memphis & Gulf, with headquarters at New Orleans, La., was announced in the *Railway Age* of January 10, was born at Amboy, Ill., on September 1, 1880. Mr. Egan has been in the service of the Illinois Central for the past 25 years. He entered railway service in August, 1893, as a messenger on that road at Chicago. In 1894, and for the three years following, he was agent at One Hundred and Fourth street, Chicago. From 1898 to 1901, he was employed as rodman in the maintenance of way department, following which he became assistant engineer in the maintenance of way and construction departments. In 1903 he was appointed road supervisor; from 1904 to 1911 he was roadmaster on the Freeport and the Nashville and Tennessee divisions. On June 6, 1911, he was appointed superintendent of the Mississippi division at Water Valley, Miss., and five years later he was transferred to the Tennessee division at Fulton, Ky., which position he held until his promotion to general superintendent at New Orleans.

J. M. Egan

Financial, Legal and Accounting

L. W. McCoy has been appointed assistant federal auditor of the Bessemer & Lake Erie, with headquarters at Pittsburgh, Pa.

L. S. Smith, local treasurer, at Dallas, Texas, for the Texas & Pacific, has been appointed acting federal treasurer of the Gulf, Texas & Western and the Weatherford, Mineral Wells & Northwestern, succeeding **W. M. Edgar** in the latter position. Mr. Smith's headquarters will be in Dallas, Texas.

William C. Fitch has been appointed freight claim agent of the Southern Pacific (lines south of Ashland, Ore.), the Western Pacific, the Tidewater Southern and the Deep Creek, having general charge of loss and damage freight claims and the prevention of causes of such claims, succeeding **M. E. McKirahan,** assigned to other duties.

F. E. Sawyer has been appointed assistant federal auditor of the Terminal Railroad Association of St. Louis; the St. Louis Merchants Bridge Terminal Railroad; the Wiggins Ferry; the St. Louis Transfer Railroad; the East St. Louis Connecting Railroad; the Interstate Car Transfer; the Alton & Southern Railroad; the St. Louis National Stock Yards Railroad; the East St. Louis National Stock Yards Railroad, and the St. Louis, Troy & Eastern, with headquarters at St. Louis, Mo., vice **F. M. McDonnell,** resigned to engage in other business.

Engineering and Rolling Stock

Andrew Hanson has been appointed supervisor of bridges and buildings of the Yellowstone division of the Northern Pacific, with office at Glendive, Mont., succeeding **W. D. Pearce,** promoted.

P. T. O'Neill has been appointed division master mechanic of the Chicago, Milwaukee & St. Paul, with headquarters at Spokane, Wash., succeeding **Fred Lowert,** who has been transferred to the St. Paul shops at Tacoma, Wash. Mr. O'Neill was formerly superintendent of motive power of the Idaho & Washington Northern at Spirit Lake, Idaho, and after that line was purchased by the St. Paul he was appointed general foreman at the Spirit Lake shops and later general foreman at the Tacoma (Wash.) shops.

William Gemlo, whose promotion to superintendent of motive power and rolling stock on the Minneapolis & St. Louis, with headquarters at Minneapolis, Minn., was announced in the *Railway Age* of January 10, was born at Glasgow, Canada, on September 28, 1868. Mr. Gemlo began railway work with the Minneapolis & St. Louis as a locomotive fireman in September, 1888, and served in that capacity until October, 1896, when he was promoted to locomotive engineer. In June, 1907, he was appointed roundhouse foreman, and two years later traveling engineer. In October, 1913, he was promoted to master mechanic at Marshalltown, Iowa, which position he held until his recent appointment as superintendent of motive power and rolling stock, with headquarters at Minneapolis, as mentioned above.

W. Gemlo

T. E. Kirkpatrick, signal supervisor on the western division of the New York Central, with headquarters at Elkhart, Ind., has been appointed supervisor of the signal repair shop at Elkhart. **T. G. Inwood,** assistant signal supervisor on the western division, with headquarters at Elkhart, succeeds Mr. Kirkpatrick, effective January 15.

George W. Ditmore, whose appointment as master car builder of the Delaware & Hudson, with headquarters at Colonie, N. Y., has already been announced in these columns, was born on February 17, 1878, at Jermyn, Pa., and was educated in the high school of his native town. He began railway work on June 1, 1897, as a journal packer at Carbondale, Pa., on the Delaware & Hudson, and later served as car repairer. One year later he was promoted to car inspector and served in various other capacities in the car department. In March, 1902, he was appointed an interchange car inspector at Green Ridge yard, Scranton, Pa., and then served as foreman of car inspectors and repairers at the same place and at Buttonwood, Wilkes-Barre, Pa. On December 1, 1913, he was transferred to Carbondale as shop foreman, and about four years later he was promoted to division car foreman of the Pennsylvania division. Since November, 1918, he served as assistant master car builder until his recent appointment as master car builder of the same road, as above noted.

G. W. Ditmore

W. F. Kaderly, general superintendent of the Georgia Southern & Florida, the Hawkinsville & Florida Southern and the St. Johns River Terminal, has been appointed superintendent of motive power of the Southern Railroad lines east, with headquarters at Charlotte, N. C., succeeding **E. C. Sasser,** resigned.

E. E. Ramey has been appointed superintendent of fuel and locomotive performance of the Baltimore & Ohio, Eastern lines; the Coal & Coke; the Wheeling Terminal Railroad; the Western Maryland; the Cumberland Valley, and the Cumberland & Pennsylvania Railroad. The position of supervisor of fuel consumption has been abolished.

F. G. Jonah, formerly chief engineer of the St. Louis-San Francisco System and recently colonel in the railroad engineeers, engaged in service on light railways with the American Expeditionary Forces in France, has returned, and is now chief engineer of the Missouri, Kansas & Texas and the Frisco Lines north of the Red river, with headquarters at St. Louis, Mo. **V. K. Hendricks,** now chief engineer of these lines, becomes assistant chief engineer.

Junius Beverley Lamb, whose appointment as signal and electrical engineer of the Southern Railroad, Lines East, with headquarters at Charlotte, N. C., has already been announced in these columns, was born on December 1, 1885, in James City county, Va., and was educated at William and Mary College, and at the Virginia Polytechnic Institute. He began railway work on July 1, 1906, with the Southern Railway as an electrician engaged on construction work and has been in the continuous service of that road ever since. From January, 1907, to November, 1909, he was electrical and signal foreman on construction work and then served as signal and electrical supervisor on construction and maintenance work. In November, 1914, he was appointed assistant signal and electrical engineer, which position he held until his appointment as signal and electrical engineer of the Southern Railroad, Lines East, as above noted.

Corporate

Executive, Financial, Legal and Accounting

F. E. Connors, assistant to the vice-president of the Atchison, Topeka & Santa Fe, Chicago, resigned on January 21, and has been appointed receiver for the Spokane & Inland Empire, with headquarters at Spokane, Wash.

J. C. Williams, general manager of the Akron, Canton & Youngstown, has been elected vice-president and general manager, and **A. L. Graner,** auditor and assistant treasurer, has been elected auditor and treasurer; both with offices at Akron, Ohio.

Operating

Walter Pratt has been appointed manager of sleeping, dining, parlor cars and hotels of the Canadian National Railways, with jurisdiction over all lines, and with office at Toronto, Ont.

Traffic

J. H. Mahan has been appointed traffic manager of the Nevada-California-Oregon, with headquarters at Alturas, Cal.

Major W. M. Kirkpatrick has been appointed assistant freight traffic manager of the Canadian Pacific, in charge of the western lines, with office at Winnipeg, Man. He was assistant freight traffic manager of the eastern lines at the time he entered military service in September, 1915.

The following appointments have been made on the Canadian National Railways, effective January 24: **P. Mooney,** assistant general freight agent of the Canadian Northern, at Toronto, Ont., has been appointed assistant general freight agent and **J. E. LePage,** division freight agent of the Canadian Government Railways, at Quebec, has been appointed division freight agent, both with offices at Quebec, and with jurisdiction over Quebec City, Levis, East of O'Brien and Garneau to Chicoutimi and Quebec, and the Quebec & Saguenay Railway; Mr. Mooney has been appointed also assistant general passenger agent; **S. G. Tiffin,** assistant general freight agent of the Canadian Government Railways, has been appointed assistant general freight agent, with office at Montreal, Que., and with jurisdiction over Kingston and East of North Bay, Ont., to Garneau, Matapedia, Que., and Edmunston, N. B.; **James Orr,** general freight agent of the Canadian Northern, lines east of Port Arthur, at Montreal, has been appointed assistant general freight agent, and **G. R. Fairhead,** district freight agent of the Canadian Northern at Hamilton, Ont., has been appointed division freight agent, both with offices at Toronto, Ont., and with jurisdiction from west of Kingston to Windsor, Ont., Toronto to Port Arthur, Armstrong, Ont., and O'Brien, Que., and **G. M. Thomas** has been appointed district freight agent, with office at Hamilton, Ont.

Obituary

J. V. Young, signal engineer of the Boston & Maine, with office at Boston, Mass., died at his home in Reading, Mass., on January 10, at the age of 56. Mr. Young had been in charge of the signal department of the Boston & Maine since July, 1895, and was a prominent member of the Railway Signal Association.

Waldo B. Cronk, vice-president and general manager of the Caraquet & Gulf Shore, with headquarters at Bathurst, N. B., and vice-president of the Kent Northern, died on January 27, in Toronto, Ont., at the age of 56. He began railway work in 1878, on the Chicago & North Western and subsequently held various positions on different roads including the Chicago, St. Paul, Minneapolis & Omaha, the Baltimore & Ohio, the Chicago, Rock Island & Pacific, the Canadian Pacific, and the Grand Trunk Pacific.

George Sherwood Hodgins, of the editorial staff of Railway and Locomotive Engineering, died at his home in New York on January 18, at the age of 59 years. A graduate of the Upper Canada College and the School of Applied Science, affiliated with the University of Toronto, he afterwards served an apprenticeship in the Kingston Locomotive Works. After some experience in a division master mechanic's office on the Canadian Pacific, he was advanced to various positions on the road, and latterly was locomotive inspector on the entire system. He was recalled to the Kingston Locomotive Works as mechanical engineer. Later he entered the service of the Pressed Steel Car Company as general inspector of the output of that plant, and was also for some years inspector for the Richmond Locomotive Works. During these earlier years he had contributed to a number of railroad publications. In 1900 he entered the field of practical journalism as editor of the Railroad Digest. In 1902 he joined the staff of "Railway and Locomotive Engineering" as associate editor, and in 1908 became managing editor, which position he held till 1911, when he was called by the Canadian Government to make a comprehensive report on the shops, appliances, tools and equipment necessary for the Trans-Continental Railway. On the completion of that work in 1915, Mr. Hodgins joined the staff of the Railway Periodicals Company as managing editor of the Railway Master Mechanic and Railway Engineering and Maintenance of Way. In 1916 he returned to Railway and Locomotive Engineering and remained on the staff as editor until his death, besides contributing to popular science magazines.

G. S. Hodgins